

speaking, they are well off, and they have the reputation of being the thriftiest and most industrious of the cultivating classes.

The functional castes come in the following order numerically :—Sadgops or cultivating Goālās (59,417), Goālās proper or herdsmen (45,083), Telis or oilmen (35,498), Tantis or weavers (25,219), Kāyastha or writers (23,610) and Muchis or cobblers.

The Kāyasthas have comparatively few representatives in Kāyastha, this district ; and the census figures show a slow decrease from 25,484 in 1881 to 23,610 in 1901, a decrease that may be partially explained by deaths from malaria and emigration to Calcutta and Howrah. They belong mostly to the Dakhin-Rārhi sub-caste, and are found largely in the three head-quarters thānas.

The Sadgops seem to be declining, as their number fell from Sadgopa, 61,021 in 1881 to 59,417 in 1901. They are found chiefly in the westernmost thāna of Goghāt, and in the adjoining thānas of Arāmbāgh, Chanditalā and Dhaniakhāli. This distribution suggests a migration from the west or north-west ; and even now they are proportionately most numerous along the western border from the Gopiballabpur thāna of Midnapore on the south to Birbhūm on the north ; one group (the Kumār or Kuār) claims to be Kulins, on the ground of being descended from the eight chiefs who ruled over Gopbhūm on the bank of the Ajai river. The Sadgops have two territorial endogamous groups, Purba-kuliya and Paschim-kuliya, i.e., those on the east and west bank of the Bhāgirathi ; and most in the Hooghly district belong to the latter group. They are chiefly cultivators and are generally well-to do.

The following is a brief account of the principal Hindu festi- HINDU
vals beginning with the first month of the Bengali year, i.e., Baisākh (April-May), which has 30 or 31 days. New year's day is celebrated chiefly by tradesmen, who now close their old accounts and open new ledgers. On this day bathing in the Ganges, especially at Tribeni, is considered very auspicious. The entire month of Baisākh is looked upon as a favourable time for good deeds and for the performance of religious duties. While it lasts, a large number of people, mostly women, come from various parts of the Province to pour water over the lingam of Siva at Chilaura, called Shāndeswar.

The next month is Jyāiṣṭha (31 or 32 days), which corresponds to the latter end of May and the first part of June. In this month the god Jagannāth and the Ganges are specially worshipped. On the tenth day of the bright half of the month the banks of the Hooghly are lined with thousands of people, who perform their ablutions in its sacred water, worshipping

the Ganges. In this month also almost every Hindu household observes a social ceremony called the *Shashthi Pūjā* (better known in Bengal as *Jamāi Shashthi*), when sons-in-law are hospitably entertained by their mothers-in-law and presented with flowers and clothes. On the full-moon day the bathing festival of Jagannāth is celebrated with special pomp at Māheś.

In Ashār (June-July) the only important religious festival is the Rath Jātrā or Car Festival, with the Ultā-rath marking the return of the car; this festival is celebrated in Māheś and Ballabhpur. In Srāban (July-August) the only festival of any importance is the Jhulan Jātra, the rocking festival. It is so called because the image of Krishna is seated on a throne (generally made of wood), which is suspended by ropes from the ceiling, and rocked to and fro like a child in its cradle. Another religious festival which takes place in this month is the worship of Manasā Devī, the goddess of snakes, which is chiefly observed in the villages. In Bhādra (August-September) the only festival worthy of notice is the Janmashtami (followed the next day by Nandotshab), the anniversary of the birth of Krishna. This is generally observed by Vaishnavas, and by boys reading at *pāthsālās*, and is presided over by *guru-mahasaygas* of the old school.

The next month Aswin (September-October) is a highly auspicious month with the Hindus, as the Durga Pūja takes place in it. On the full-moon, which immediately follows the Durga Pūja, the festival of Lakshmi, the goddess of prosperity, is celebrated. In Karttik (October-November) several important religious festivals take place, viz., Shyāma Pūja, Jagaddhātri Pūja, Karitik Pūjā and Rāsh Jātrā. In this month also a social festival called Bhrātri Dwitiya takes place. No important festival is celebrated in the month of Agrahayan (November-December). In Paus (December-January) the Uttarāyan festival takes place at Tribeni. On the last day of the month large numbers of pilgrims, coming from different parts of the Province, bathe in the Ganges. On this occasion a fair is held at Tribeni, and Hindu families prepare and eat various kinds of cakes and generally enjoy themselves. In the month of Māgh (January-February) the worship of Saraswati (goddess of learning) takes place, pens, ink and books being laid aside for the time and worshipped. In Phālgun (February-March) the most important festivals are the Sivarātri and the Dol or Holi festival, which are too well known to call for description. A large *mela* is held at Tārakeswar in connection with the Sivarātri festival.

In Chaitra (March-April), the last month of the Bengali year, the great swinging festival called Charak Pūjā, takes place.

It is observed on the last day of the month, corresponding at present to 13th April, and is celebrated with some pomp, more particularly at Tarakeswar. At Chinsura the festival is observed in front of the temple of Shārdeswar and is followed by a fair, which lasts the whole of the next month. Besides these fixed festivals, eclipses of the moon and sun are considered auspicious. During eclipses large numbers of Hindus bathe in the Ganges and old cooking pots are discarded, being replaced by new.

The principal places of pilgrimage in the district are Tribeni, Māhesh, Ballabhpur and Tarakeswar. The principal Hindu festivals celebrated at Tribeni are:—(1) Makar Sankranti and Uttarāyan held on the last day of Paus and the first day of the succeeding month of Māgh. A *meta* or fair is held at Tribeni on the occasion of this festival, which usually lasts for three days and is attended by several thousand persons (2) Vishnupadi Sankranti, held in honour of the sun at the time of the vernal equinox, on the last day of the Hindu month of Magh. The principal religious rite consists in bathing (3) Bāruni, the great bathing festival of Bengal, held in the month of Chaitra in honour of Baruna, the god of the waters. The fair and religious ceremonies only last one day. (4) Dasahārā, held within the Hindu month of Jyaishtha in honour of the goddess Ganga. The festival lasts one day. (5) Karttik Pūjā, on the last day of the month of the same name, is in honour of the god Kārttikeya, the son of the goddess Durga. A fair is held at Bānsberia near Tribeni, and the festival lasts for one day only.

Two important festivals connected with the god Jagannath are held at Māhesh and Ballabhpur. The first is the Snān Jātrā, or bathing festival of Jagannāth, which takes place at the full moon of the month of Jyaishtha. It only lasts one day, but is attended by a large concourse of people from the neighbouring villages and from Calcutta. The ceremony simply consists in bringing the god out of his temple on to a platform, and bathing him in the presence of the multitude, who make offerings to the deity. Sixteen days after the bathing festival, the Rath Jātrā or Car Festival takes place. The god is again brought out of his temple at Māhesh, placed on a huge car, and dragged for a distance of about a mile to the village of Ballabhpur, where he is placed in the temple of another god, Rādhāballabh. After the lapse of eight days, the Ultā-rath or return journey takes place, the god being escorted back to his temple in the same way as he was brought out. A large fair is held at

PLACES
OF PIL-
GRIMAGE.

Mahesh at the time of the festival. People combine business with pleasure ; and long lines of booths are constructed, in which a brisk trade is carried on in cloth and trinkets, such as looking-glasses, combs, boxes, caps, mats, hookahs, children's toys, etc. On the Sunday which falls within the 9 days of the festival a river fete used to be held ; for about a mile opposite to Ballabhpur the river was crowded with boats, the occupants of which engaged in singing, music, dancing and other diversions. Although the fair lasts for nine days, the religious ceremonial is confined to the first day, on which the idol is taken to Ballabhpur, and the ninth day, on which it is conveyed back to Mahesh. On these days the crowd is immense, and on some occasions it is estimated to amount to a hundred thousand persons.

The shrine at Tarakeswar is another sacred place, to which pilgrims flock at all times of the year, principally for the fulfilment of vows on recovery from sickness. Two large religious gatherings are held every year for the worship of Siva, the deity of the temple. The first of them is the Siyarātri, held in February, on the fourteenth day after the full moon in the month of Phalgun, a day specially sacred to Siva. The three essential observances of the Sivarātri are fasting by night and day, holding a vigil, and worshipping the lingam during the night. The second important religious festival held at the Tarakeswar temple is the Chaitra Sankrānti, on the last day of the Hindu month of Chaitra and of the Bengali year, which is also the day of the swinging festival. The temple is also visited during the whole of the month of Chaitra by a large number of persons from the surrounding neighbourhood, within a circuit of 40 or 50 miles. These persons generally belong to the lower castes, who come to perform some penance, or to lead an ascetic life for a time, in fulfilment of a vow made to Siva in time of sickness or in danger, or in order to gain a reputation for piety. For 10 days the devotees chasten the flesh by fasting, etc. Formerly, during the last few days of this period of penance, which ends with the Chaitra Sankrānti, self-inflicted tortures were added to the ordinary penance. Numbers of Sannyāsins and other Sivite ascetics voluntarily subjected themselves to torture by walking upon live embers, throwing themselves down from a height, piercing their body and tongue with pincers, etc. ; concluding on the last day (that of the Chaitra Sankrānti) with swinging themselves from a high pole by means of hooks pierced through the fleshy muscles on both sides of the spine. These and other practices of the sort are now prohibited.

by Government ; and the swinging festival of the present day is a very harmless affair, compared to what it used to be, the votaries now being merely suspended by a belt.

The principal Muhammadan festivals observed in the district MUHAMMADAN FESTIVALS. of Hooghly, as in other Muhammadan places, are (1) the two *Id*s, (2) the *Shib-i-Birat*, (3) the *Futthā Douzdhān*, and (4) the *Muharram*. These are prescribed either by the *Korān* or the *Hadīs* (the traditions), and the modes of celebrating them are more or less uniform. *

The *Id*s are (*a*) the *Id-ul-Fitr* (or the lesser *Bairam* as it is called in Turkey) and (*b*) the *Id-us-Zohā* (or the greater *Bairam*). The *Id-ul-Fitr* begins on the 1st Shawal (the tenth month), and is the feast with which Muhammadans break the fast of Ramzān. The month of Ramzan has a peculiar sanctity in the calendar of Islām, as during this month the Prophet Muhammad received the revelations brought down from heaven by the Angel Gabriel. The words of the *Korān* are :—“ Ye shall fast in the month of Ramzān, in which the *Kordū* was sent down from heaven. Therefore let him among you who shall be present in this month, fast ; but he who shall be sick or on a journey, shall fast the like numbers of other days ” Aguin —“ Those who can keep it, and do not, must redeem their neglect by maintaining a poor man.” Musalmāns are therefore bound—subject to exceptions in the case of travellers and sick persons—to fast during the whole of this month, from the day of the appearance of the new moon till the appearance of the next new moon. During this period they must abstain from eating, drinking and intercourse with women, from daylight till sunset ; after sunset they may break their fast. During this month special religious services are held in the mosques at Hooghly at the time of *Isha* (nightly prayer), and a large number of beggars are daily fed at the Imāmbārā.

The *Id-ul-Fitr* lasts three days. On the morning of the first day prayers are offered up in the mosques, *Idgahs*, and the Imāmbārā. It is an impressive sight to see at this time the orderly phalanx of Musalmāns bent in prayer on the rough grey quadrangle of the Saiyad Chānd mosque, on the polished marble slabs of the Imāmbārā, or on the grassy earth in front of an *Idgah* — all facing towards the *Jahāh* to the west. Prayer being over, the *Khatba* is recited, and at its close, prayers are offered up for the prosperity of Islām, the preservation of peace and unity, etc. After this, the congregation embrace one another and then depart to their homes. For three days together demonstrations of joy are kept up ; *star* and *pān* are freely distributed ; friends

go round visiting each other; milk, dates and other confections are distributed amongst them.

The *Id-uz-zu'l-id*, popularly called the *Bakr-Id*, is the feast of the sacrifice, and begins on the tenth of the month of Zil-hajja (the twelfth month). Prayers, followed by the recital of the *Khutbâ*, are offered up in the Imâmbârâ, the Saiyad Chând and other mosques, and sheep, goats, and kine are sacrificed. The origin of this festival is traced to the sacrifice of a ram in place of Ismâîl. According to the *Korân*, Abraham was commanded, in a dream to sacrifice his beloved son Ismâîl, but when he had laid him prostrate on his face ready for sacrifice, a ram appeared and was substituted as a victim.

Shab-i-Barâ on the 14th Shâbân (the eighth month), is another important Muhammadan festival. During the daytime alms are distributed, prayers offered up, and presents in the shape of *halwâ*, bread and other dainties sent to friends: at night fireworks are let off. The tradition regarding the origin of this festival is that the Prophet, having had one of his teeth knocked out by a stone slung at him in a battle, was given *halwâ* to eat by his daughter Fatima.

Fatihâ Douâzdaham is the anniversary of the Prophet's death and occurs on the 12th Rabi-ul-Awal (the third month). It is a day of mourning in the Moslem world. *Maulid shariâ*s (hymns and narratives chronicling the Prophet's career) are recited in the houses of most of the well-to do Moslems at Hooghly, and sweets are generally distributed among those who attend.

The *Muharram* (the first month) is a period of deep mourning commemorating 'the life and death struggle between Hasan and Husain, the sons of Fâtimâ and grandsons of the Prophet, on one side, and Yezid, son of Moyâviâ, on the other, which culminated in the slaughter of the scions of the *Alel-ul-Bait* (or Prophet's family) on the bloody battlefield of Karbelâ.' The Sunnis observe the *Muharram* as a period of silent mourning, offer up prayers and distribute alms to the poor and helpless. The Shiâhs have more open demonstrations of sorrow.

At Hooghly the *Muharram* is celebrated with unusual pomp and ceremony owing to the existence of the Shiâh Imâmbârâ of Hâji Muhammad Mohsin. Here the *Marsî* or funeral service is held every night, and *pîdo*, *korîd*, etc., are daily distributed among the Muhammadan residents of Hooghly. On the 7th and 8th days of the *Muharram* long processions, with horses, elephants, banners and flags, start from the Imâmbârâ. On the 9th night (*Kull-ki-râ*, or the night of slaughter) there is another procession, bearing scores of tassies, flags, banners and torahes, and headed by the

priests of the Imāmbārā, who pause at every turn, reciting the funeral hymns and beating their breasts. On the 10th day (*Ashura*), the day on which the burial of the martyrs took place, a similar procession starts from the Imāmbārā and consigns the effigy of Husain to the tank at Karbela.

Besides the usual festivals which are prescribed by the *Korān* or the traditions there are some religious fairs peculiar to the Muhammadans in the Hooghly district, held in connection with the shrines at Pandua and Tribeni. At Pandua there is a shrine of a Muhammadan saint named Shāh Suti Sultān, where fairs are held every year in the months of Paus, Phālgun and Chait. On the west side of the shrine there is a sacred tank called Pir Pukhur. Men and women resort to this tank on the 29th Paus, stay there the whole night, and commence bathing in it at 3 A.M. There is an alligator in the tank, called Kālā Khān, to which women make votive offerings in the hope of being blessed with issue. Bathing over, the pilgrims wend their way back to the shrine *via* Mandirtalā, scattering rice, cowries, etc., on the way. Some sit down along the route, and recite the *Korān* and religious hymns. Another fair takes place towards the end of Paush on the Uttarāyan Sankranti (a Hindu festival) and lasts 8 or 10 days; it is well attended, and many shopkeepers come to it from adjoining places. The fair which is held in Phālgun lasts only two or three days, and is not so well attended as the Paush fair. The fair which is held in Chait is better attended than the Phālgun fair, but lasts only five or six days. Pilgrims generally carry away with them a pitcher of water drawn from the Pir Pukhur, which they scrupulously preserve.

At Tribeni the shrine of Shāh Jafar Khān Ghāzi is said to have been in existence for 700 years. According to tradition, he was a warrior saint, who, on coming to Shāhpur, waged war with, and defeated, the Hindu Rājā of Mahānād. Two fairs take place at Tribeni, one in the beginning of Māgh and the other during the Dol Jātrā. The fair which takes place in Māgh lasts one day, and that held during the Dol Jātrā lasts four or five days. Muhammadan pilgrims sacrifice fowls, goats, etc., during both these fairs.

CHAPTER V.

CHRISTIAN MISSIONS.

AUGUST.
INIAWS.

AMONG the first Christian missionaries in the district were Augustinian friars, who came from Goa to the Portuguese settlement at Hooghly in the second half of the 16th century and were the principal missionary body in Bengal. According to tradition, a Portuguese captain named Tavares, who was a favourite of the tolerant Emperor Akbar, succeeded in inducing him to allow the public preaching of the Christian faith and the erection of Christian churches. In 1599 a church was built at Bandel, a mile away from the Portuguese factory, and also a monastery, which became the headquarters of the Augustinian missionaries. The success of their labours was attested and keenly resented by the Muhammadans. The author of the *Bādhāh-nāmā*, writing in the first half of the 17th century, complained that the Europeans infected the inhabitants round Hooghly with the Nazarene teaching, some by force and more by hope of gain. Khāfi Khān again (*circa* 1720) wrote bitterly that, of all the odious practices of the Portuguese, the most odious was the way in which they took any orphans there might be in their settlements and, whether Brāhmans or Saiyads, made them Christians and slaves. It seems at least certain that the Portuguese of Hooghly made their slaves turn Christians, for we have it on the authority of Bernier that they regularly bought up slaves from the pirates of the Bay, who boast, the infamous scoundrels, that they make more Christians in a twelve-month than all the missionaries of the Indies do in ten years."

The resentment of the Emperor Shah Jahān at this proselytising is said to have been one of the reasons for the attack on Hooghly in 1632. After its fall, the Christian captives were transported to Agra and exposed to the bitter persecution mentioned in the last chapter. "Even the children, priests and monks shared the universal doom.... Some of the monks, however, remained faithful to their creed, and were conveyed to Goa and other Portuguese settlements by the kind exertions of the Jesuit and other missionaries at Agra, who, notwithstanding all this calamity, continued in their dwelling and were enabled to

accomplish their benevolent purpose by the powerful aid of money and the warm intercession of their friends."* Recent researches have shown that two clerics, Father Emmanuel d'Anhayu and Father Emmanuel Garcia, died in prison at Agra in 1633 and 1634, "pela fe," i.e., for the faith, and two priests followed them to the grave in 1634. The two clerics must have been among the Augustinian friars who remained faithful, and the place where they were buried is still called the Martyrs' Chapel.† The Prior of Hooghly (Father Antonio da Cristo), however, is said to have remained in prison at Agra till 1640, when an Augustinian friar, Father Manrique, procured his release ‡. The Portuguese were allowed to re-enter Hooghly in 1633 and, according to the account quoted in the preceding chapter, the Emperor Shah Jahān was so deeply impressed by the miraculous preservation of Father John da Cruz, that he not only permitted them to rebuild the church at Bandel, but also gave it an endowment of 777 *bighās*. The church, which had been destroyed during the sack of Hooghly, was rebuilt by a pious Portuguese, named Gonçalves de Soto, in 1660. Near this church stood the church of Misericordia, to which an orphanage was attached; and there was also a nunnery, at which merchants and others left their daughters to be educated during their absence from home.

Later accounts pourtray the Augustinian friars in an unfavourable light. For instance, about fifty years after the restoration of the church, Alexander Hamilton remarked, in bluff sailor fashion:—"The Bandel at present deals in no sort of commodities but what are in request at the court of Venus, and they have a church where the owners of such goods and merchandise are to be met with; and the buyer may be conducted to proper shops, where the commodities may be seen and felt, and a priest to be security for the soundness of the goods." After 1756, that year of trouble for Hooghly, the establishment declined. "The hospice of Bandel," wrote Georgi in 1760, "was formerly celebrated and distinguished, not so much for the size of its buildings as for the number of religious men and the magnificence of its public schools, but in consequence of the calamities of the times it is almost destitute of inhabitants except a few."§ Subsequently, however, it appears to have recovered, for in 1797 the Prior felt himself strong enough to claim independent civil and criminal jurisdiction, except in cases of

* Bernier's Travels.

† The Revd. H. Hosten, S.J., *Jesuit Missions in Northern India* (1908), p. 27.

‡ H.G. Keene, *Sketch of the History of Hindostan* (1885), pp. 198-99; Revd. H. Hosten, J.H.S.B., 1910, pp. 282-3.

§ *The Portuguese in North India*, Calcutta Review, Vol. V, 1848.

murder, over all the ryots in the monastery lands. In support of his claim, he quoted the terms of a *pharman* of 1645 confirming the grant of 1633, and also a letter of 1787 prohibiting the Collector from exercising civil and criminal jurisdiction over the inhabitants of Bandel, but Government disallowed the claim.*

The last Prior of the monastery, Father Joseph Gomez, died in 1869, and the church is now in charge of a parish priest, who retains the title of Prior of Bandel. Out of the 777 *bighas* granted by Shah Jahān, some 380 *bighas* still constitute an endowment of the church and yield a small rental.

The Prior of Bandel occupies a somewhat unique position in Bengal in being under the jurisdiction of the Bishop of Mailapur or Meliapur (St. Thomé) in Madras. This connection with Mailapur embodies ecclesiastical history. Until the establishment, in 1886, of the new Catholic hierarchy for India, the Roman Catholic missions were governed by vicars and prefects-apostolic, all dependent on the Congregation de *propaganda fide* at Rome. Within the territories assigned to ten of these vicars apostolic, the Archbishop of Goa (appointed by the King of Portugal) had an "extraordinary jurisdiction" over a certain number of persons and churches outside his diocese in various parts of India. The independent jurisdiction of the Archbishop of Goa had its origin in the right of patronage (*padroado*) over bishoprics and benefices in the East, which was granted by the Popes to the Portuguese Crown. On the ruin of the Portuguese power in India the King of Portugal was no longer in a position to exercise his patronage, and eventually, in 1838, as all the *padroado* bishoprics had been vacant for many years, Gregory XVI suppressed the sees of Cochin, Crangalore and Mailapur, annexed their territories to the Vicariates-apostolic created by him or his predecessors, and limited the Goanese jurisdiction to Portuguese possessions. The Indo-Portuguese clergy as a body refused to abide by these orders, and a schism ensued. Eventually, in 1866, a Concordat was issued by which the *padroado* was limited to one ecclesiastical province, consisting of the metropolitan see of Goa and three suffragan sees (Damān, Cochin and Mailapur), the Pope being free to make arrangements for the rest of India.†

JESUITS.

The Jesuits also appear to have come to Hooghly before the close of the 16th century. According to Fathers Besse and Hosten, two Jesuits came to Bengal in 1576 and insisted on the Portuguese traders refunding to the Emperor Akbar certain sums due for anchorage and taxes of which they had defrauded

* Toynbee's *Sketch of the Administration of Hooghly*, p. 6.

† W. W. Hunter, *The Indian Empire* (1892), pp. 308-9.

the exchequer. But through the influence of Pedro Tavares, the Captain of Hooghly, then (1578) at Fatehpur Sikri, all arrears were remitted. The Fathers' conscientious scruples and Pedro Tavares' petition favourably impressed the Emperor, and led eventually to the first Jesuit Mission at Fatehpur Sikri in 1580. The name of only one of these Fathers in Bengal has been preserved, Father Anthony Vaz.* Subsequently, we find that Hooghly was visited in 1598 by two priests, Fernandez and Josa, who were sent to Bengal by Pementa, a Jesuit visitor at Goa. Fernandez subsequently went to Chittagong, where he was mutilated and killed in 1602, while Josa was sent on a mission to the Sundarbans. By 1603 Jesuits had at least two stations in Bengal— one presumably at Hooghly and the other at Chittagong†— and in 1620 they established a branch of their Hooghly mission at Patna. According to the *Litterae Annuae* of Cochin, dated December 1620, the Nawâb of Patna “having heard that some Portuguese merchants had recently arrived in his territory, sent for them and received them with the utmost kindness, going so far as to send them his own elephant and horses caparisoned according to their custom. He likewise gave orders that every day as many horses as there were Portuguese should be held in readiness. The Portuguese were so surprised at these marks of honour that they soon returned with presents, to show their gratitude and enter into friendship with him. He asked them whether there were Fathers of the Society in Bengal; and, on their answering that there were to be found some dispersed in several places throughout the country, he wrote a letter to the Superior requesting him to come and see him, as he had important affairs to settle with him. He offered him every means to alleviate the hardships of the journey and remove the difficulties in the way, volunteering to defray all the expenses for the building of a church and the maintenance of the Father who would be left in charge of it. The Nawab also wrote to ‘the Captain-General of that place’ and to two of the principal inhabitants, asking them to go and see the Father and prevail upon him to comply with the request. These and other similar reasons finally decided the Father to undertake the journey, which he accomplished in sixteen days.”‡ The Nawâb subsequently confessed secretly that he was a Christian, assigned

* The Revds. L. Besse, S.J., and H. Hosten, S.J., *List of Portuguese Jesuit Missionaries in Bengal and Burma*, J. A. S. B., February 1911.

† The Annual Letter for 1603, dated 15th January 1604, giving a list of Jesuit houses in Asia, mentions “Residencias de Bengala.” *Marsden MSS.* Revd. J. Hosten, S.J., J.A.S.B., 1910, p. 444.

‡ *Foundation of the Jesuit Mission of Patna*, “Catholic Herald,” 22nd August 1603.

the priest a house for his residence, and gave a grant for the building of a church.

The "Captain-General" was the Rector of the College of Hooghly, and the Father who visited him was Simon Figueiredo, whom we find afterwards (in 1623) stationed at the College at Hooghly. The Nawâb was Mukarrab Khân, who proved a good patron to Hughes and Parker when they endeavoured to establish a factory at Patna in the same year; but Figueiredo suspected that he only kept a priest in order to bring Portuguese merchants to the city.* Three of the Portuguese priests died of the 'plague' at Hooghly in 1626; and next year a lay brother, Bartolomeo Fontebona, one of the early missionaries sent by the Jesuits to Tibet, also died there. According to one account, two of the daughters of Nur Juhán, having become Christians, took up their abode with the Jesuits in the Portuguese settlement of Hooghly.† A few years later, in 1632, when the Mughals sacked Hooghly in, the College of the Jesuits was destroyed.* During the siege one of the Fathers was cut down with a scimitar; another was shot dead with arrows, and Father Da Cruz was wounded in the back with a scimitar, but recovered in a village near Hooghly.‡ After 1632 the history of the Portuguese Jesuits is almost a complete blank.

The French Jesuits were also established for about a century at Chandernagore, where they worked as parochial clergy for the factory (c. 1693-1790). Mention is made in 1723 of their having a College at Bandel,§ and we find that in 1753 they had a hospital and orphanage at Chandernagore. Their church and house were pulled down in 1756, when the Governor, Renault, was strengthening the defences of Fort Orleans.||

CAPU.
CHINS.

The Capuchins also made Chandernagore their headquarters for some time. It was, in fact, the *point d'appui* for their missions to Tibet after 1703, when the Prefecture of Tibet and the adjoining countries was created and entrusted to them. They first established themselves at Chandernagore in that year, and then set up a branch mission at Patna, and in 1705 they opened a station at Pâtau in Nepál. A second expedition was sent out in 1707 under the Prefect Dominic of Fano, who succeeded in penetrating to Lhâsa with a few companions; but by 1709 the little band was reduced to the verge of starvation. The mission

* H. Hosten, *Jesuit Missionaries in Northern India*, pp. 18, 19, 21.

† H. G. Keene, *Sketch of the History of Hindooistan* (1885), p. 195.

‡ L. Besse, and H. Hosten, *List of Portuguese Jesuit Missionaries*, J. A. S. B., February 1911.

§ *The Portuguese in North India*, Calcutta Review, Vol V, 1846, p. 260.

|| *Bengal Past and Present*, Vol II, pp. 345, 374.

was abandoned in 1711, the missionaries returning from both Tibet and Nepal and concentrating at Chandernagore. They did not, however, give up hope of re-establishing themselves in Tibet. Dominic of Fano himself went to Rome and pleaded their cause, being supported by the Bishop of Mailapur. It was decided to revive the mission to Tibet and twelve priests were allotted to it, four of whom were to be stationed in Lhāsa, and two each in Patna, Nepal, "Drogn-gne" in the province of Takpo in Tibet, and Chandernagore. Dominic of Fano returned in 1714, bringing with him a decree from the Pope, Clement XI, drawn up in his name as "Prefect of the Tibet Mission," and granting his request "to erect upon the mission station and settlement of Chandernagore an oratory or small church."* The church built under this authority is believed to be the present chapel of the Convent of the Immaculate Conception, which has the date 1720 inscribed on its door, the Convent being originally a foundling hospital established by the Capuchins.

The Tibetan mission practically collapsed in 1745, when the heroic Horace of Penna left Lhāsa, dying broken-hearted at Pātan in Nepal six weeks later. In Nepal, however, it lingered till 1768, and throughout these years the Capuchins remained in residence at Chandernagore. Here fourteen of the mission died in the 18th century, the first being Brother Jacob of Breno, who with Horace of Penna was a member of the third expedition of 1712, and the last being Angelus de Carglio and Ludovic de Citta de Castello (died 1799) of the 25th expedition of 1790†. The Tibet mission finally ended in 1845, when the Vicariate Apostolic of Patna was created and entrusted to the Capuchins.

The first Protestant minister in the district was the <sup>THE FIRST
CHAPLAIN
AT</sup> Revd. John Evans, a Welshman, who had graduated at Jesus College, Oxford. He was sent out to minister to the English ^{HOOGHLY.} employes at the Hooghly factory, where he arrived in 1678. There he set to work to have a chapel set aside for religious worship, and one is found in use in 1679. With Streynsham Master he drew up a set of rules for the factors in order to ensure godly and quiet living. These rules were fairly comprehensive. Anyone guilty of profane swearing was to pay a fine of twelvepence for each oath ; the same penalty was fixed for lying ; any Protestant in the Company's house neglecting to attend public prayers morning and evening without lawful excuse had to pay the same amount or be confined a whole week within the house ; the

* G. Sandberg, *The Exploration of Tibet* (1904), pp. 82, 34, 36, 37; Sir Thomas Holdich, *Tibet the Mysterious*, p. 76.

† *Catholic Directory for the Archdiocese of Agro for 1907*, pp. 182-85.

irrecoverable were to be deported to Madras, there to receive condign punishment. Evans left Hooghly with Charnock, when it was abandoned in 1686.*

**CHAS.
LAWS AT
CHIN-
SURA.** The first European Protestant missionary in the district was Zachariah Kiernander, a Swede, who came to Calcutta in 1758. After a long ministry there, his property, the mission church and school were seized by the Sheriff in 1787 in satisfaction of debts, and Kiernander sought refuge under the Danish flag at Serampore and then retired to Chinsura. There he received a cordial welcome from the Dutch Governor, Titaingh, who appointed him Chaplain on a salary of Rs. 50 a month. There was at the time no Chaplain, but only a reader who every Sunday read a sermon and the Dutch psalms. The Dutch had, it is true, applied to Tranquebar for a missionary in 1732, but at that time there was no one available. At Chinsura Kiernander was visited in 1794 by Dr. Carey, who recorded that the ardour he manifested for the conversion of the heathen was very animating and that he himself derived the highest encouragement from his exhortations. In 1795 Chinsura was taken by the English, and Kiernander became a prisoner of war. He was, however, allowed his liberty, and the salary given him by the Dutch was continued by Mr. Commissioner Birch during the period of English rule. But he was growing weaker and more infirm. Next year, being unable to discharge the duties of his office—he was now 85 years of age,—he resigned it and left Chinsura altogether. He still, however, came there occasionally from Calcutta, and during these visits baptized and preached. An entry in his diary shows that in 1798 he baptized Peter Theodorus Gerhardus Overbeck, whose tombstone in the Dutch cemetery bears a touching inscription put up by his father (possibly the last Dutch Governor).† In 1798, the first agent of the London Missionary Society (instituted in 1796) arrived at Chinsura. This was the Revd. Nathaniel Forsyth, who died in 1816, and is described on his tomb ‘as the first faithful and zealous Protestant minister in Chinsura.’ The epitaph reads strangely, considering the fact that his predecessor was Kiernander.

**SERAM.
PORN
MISSION.** The first organized mission established in the district for spreading Christianity among the natives was that known as the Serampore Mission. The Baptist Missionary Society was formed in 1792, and next year sent its first missionaries to Bengal. These were William Carey, who started life as a shoemaker—or, as he

* H. B. Hyde, *Parochial Annals of Bengal*, pp. 3–14.

† *The First Protestant Missionary to Bengal*, *Calcutta Review*, 1847, pp. 151, 177–8, 182.

humly said, ‘only a cobbler’—and John Thomas, who had been a ship’s surgeon. They embarked in a Danish vessel and landed in Calcutta in November 1793, but after being a month there were reduced to such straits, that they had to seek a cheaper locality. Bandel was fixed upon, and here Carey met Kiernander. But Bandel was ill-suited for Carey’s plan of missionary labour. “It afforded him no opportunity of accommodating his habits of life to native economy, which he had been led to consider the most effectual mode of obtaining access to the people.” The two men, therefore, left the place and returned to Calcutta. They were again, however, compelled to leave by poverty. Thomas accepted the management of one of Mr. Udny’s indigo factories in Málda, and Carey, after staying a short time at Husainábád in the Sundarbans, undertook the management of another in 1794.

In October 1799 a fresh band of Baptist missionaries, viz., William Ward, Joshua Marshman, Mr Brunsdon and Mr. Grant, arrived at Serampore in an American vessel with a letter of introduction to the Governor, Colonel Bie, from the Danish Consulate in London. They were afraid of being deported if they landed at Calcutta, for no Europeans were allowed to settle without a license, and they, therefore, came straight to Serampore. This expedient at first seemed to have failed, for their arrival was reported and the commander of the vessel informed that his vessel would not be allowed to enter the port and discharge cargo, unless his four passengers undertook to return to England at once. Ward and Brunsdon at once left for Calcutta to plead their cause in person, and found that one of the papers had announced the arrival of four Papist missionaries, owing either to a misprint or to ignorance of the Baptist denomination. They were, therefore, regarded as French spies, for at that time it was believed that emissaries of Buonaparte were travelling about in the disguise of Roman Catholic priests. The Baptists appealed to the Revd. David Brown, a good friend to missionaries, and he interceded for them with the Governor-General, Lord Wellesley. The embargo on the vessel was withdrawn, but all Mr. Brown’s efforts to obtain permission for them to settle in British territory were unavailing. They were, therefore, obliged to abandon the idea of going up-country to join Carey, and decided to make their headquarters at Serampore. This decision was largely due to the kindness of Colonel Bie, who offered them the protection of the Danish crown, and the privileges of Danish citizenship, and also permission to open a school, set up a press and print the *Scriptures*.

Here Carey joined them in January 1800, bringing with him a printing press, which Mr. Udny had presented to the Mission.

Their first years at Serampore were not without trouble. Mr. Grant had died within a month of landing ; Mr. Fountain, who had worked with Carey at Malda and joined him at Serampore, died next year (1800), and Mr. Brunsdon the year after. Mrs. Carey had lost her reason in 1794 through grief at the death of one of her children. She was now hopelessly insane, and in 1800 Thomas also went mad with excitement at the first conversion made. The baptism of the first convert, Krishna Chandra Pál, was consequently a painful scene, for "Thomas, who was confined to his couch, made the air resound with his blasphemous ravings ; and Mrs. Carey, shut up in her own room on the opposite side of the path, poured forth the most painful shrieks." In spite of these misfortunes, the three survivors, Carey, Ward and Marshman, steadily laboured on "in the cause of religion and humanity," and were ably seconded by Mrs. Marshman, "the first woman missionary to women," who opened schools for girls and established a native female education society. Their great work can only be briefly sketched here. The work of Carey's life was the translation of the Scriptures into the languages of India, and before he died he had published the Bible in Sanskrit, Persian, Hindustáni, Bengali, Marathi, Oriya, Telugu, Pashtu, Punjabi, Gujarati, Hindi and other vernaculars, besides publishing dictionaries and grammars in various Indian languages. He also founded an agricultural society and established a botanic garden. Ward preached, chiefly in Bengali, superintended the vast business of the press which they set up, and left a monumental work on Hindu religion and customs. Dr. Marshman preached in English and Bengali, was manager of a number of branch missions, conducted the correspondence of the Mission—was in fact its Foreign Secretary.

A few features of the Serampore missionaries' work call for special notice. The first is the way in which they endeavoured to bring Christianity home to the natives of India by publishing the Scriptures and preaching themselves in the vernacular. Even Kiernander—devoted missionary though he was—never acquired an adequate knowledge of Hindustáni or Bengali, and to the day of his death was unable to converse in them. Simultaneously with this plan of translations, Carey and his two associates formed the design of establishing subordinate missionary stations in Bengal. After many obstacles the plan succeeded ; and as means became more plentiful, the system was extended, until the

Serampore missionaries became the central directing authority of sixteen missions in different parts of Eastern and Northern India. A corollary of their conviction that the evangelization of the country must be accomplished through the vernacular tongues was the establishment of a college of Oriental learning. "If ever," they said, "the Gospel stands in India, it must be by native opposed to native in demonstrating its excellence above all other systems." It was to the natives learned alike in Sanskrit and in English that the missionaries looked for the agency which was to extend their efforts, and the College was therefore to have Professors of Sanskrit, Arabic and English.

Another interesting feature of the Mission was its self-supporting character. As soon as it started, it was determined to dine at a common table, and to have a common stock, each family being given a small allowance for personal expenses; it was resolved that no one should engage in private trade, and that whatever might be earned should be credited to the common stock. This resolution was loyally observed. Not to multiply instances though the boarding-house established by Dr. Marshman yielded an income of £1,000 in the first two years, he kept only £34 a year for the expenses of himself and his family; and the total sum contributed to the Mission by the missionaries themselves, from first to last, was £80,000.

The missionaries did not, at least in the early days, carry on their work without great difficulties, due principally to the hostility of the British Government. "They lived from day to day under the incessant fear that, from some casual expression, some carelessness in their converts, their labours would be brought to an end, their property confiscated, and their persons deported as seditious offenders. They were saved in the first place by their situation. The Danish Government, unaffected by the prejudices of the Company, was friendly to Mission effort. The local authorities were friendly to establishments which brought occupation and comfort to hundreds of their people. They resisted gallantly every suggestion of extradition, and on one occasion at least took the responsibility of a quarrel which might have involved war. Throughout the struggle the conduct of the Serampore missionaries was beyond praise. They never defied the Government. They never fought minor questions. They never engaged in political discussions. They simply and calmly refused to intermit their, missionary labour on any secular consideration whatever."* The first serious interference with their work took place in 1806.

* *Corey, Marshman and Ward, Calcutta Review, 1859.*

when the Government of Sir George Barlow, alarmed at the mutiny of Vellore and fearing the results of any attempt to proselytize the natives, forbade all itinerant preaching or the establishment of stations beyond the limits of Serampore. Next year the progress, if not the extinction, of the Mission was seriously threatened by the Government of Lord Minto. A pamphlet had been issued from the Serampore press, reflecting severely on Islam and Muhammad. The British Government demanded its suppression, and the missionaries, discovering an interpolation by the Munshi employed to revise the translation, surrendered the edition. Not content with this, the Government called on the Governor of Serampore, Colonel Krefting, to withdraw his patronage and send them and their press to Calcutta, where they would be subject to British authority. Krefting refused to submit to such dictation, especially as the missionaries were under the direct patronage of the Danish King; a personal appeal was made to Lord Minto, and the demand for their surrender was abandoned.

In 1812 they had another misfortune. A fire destroyed nearly everything in their printing press. Property to the value of Rs 7,000 was lost, besides many valuable manuscripts and translations; but friends in India and England quickly came to their aid, and in two months the loss was made good. Later in the same year further trouble followed, the opposition of Lord Minto forcing five missionaries, who had arrived without a license, to fly from Bengal, while another was deported. In 1837 the Mission came to a close for want of funds. Marshman, now the sole survivor of the three great pioneers—for Ward had died in 1823 and Carey in 1834—found it impossible to carry on the work without further help. Mr Mack was sent to England to recruit the finances of the Mission, but could get little assistance, and he was therefore obliged to arrange for its transfer to the Baptist Missionary Society. The news reached Calcutta 12 hours after Dr. Marshman's death.

The work done by the Serampore missionaries has been well summed up by Dr. Marshman's son:—"The Serampore Mission may be said to belong to the heroic age of missions, and the interest which is attached to it will continue to increase with the future triumphs of Christian truth in India. At the period when it was established, the public authorities, both in India and England, were opposed, on political grounds, to every attempt to introduce religious or secular knowledge into the country. It was the zeal, fortitude and perseverance of Dr. Carey and his two colleagues which were mainly instrumental in inducing higher and

more improved principles of policy. Those who first moved in this undertaking have well deserved the gratitude of every Indian philanthropist. The Mission was established by three men of humble lineage, 'apostates,' as their opponents delighted to term them, from the last and the loom but of sterling genius. They were brought together by unforeseen circumstances, and, when their infant establishment was threatened with extinction by their own Government, were providentially provided with an asylum in a foreign settlement till the storm had blown over. A unity of object produced a unanimity of sentiment which has rarely been surpassed. Every private feeling and every individual predilection was merged in the prosecution of a great public undertaking, which they pursued with unabated energy to the end of their lives. They were exactly fitted for mutual co-operation. They were all imbued with the same large and comprehensive views, the same animation and zeal, and the same pecuniary disinterestedness. Their united energies were consecrated to the service of religion, for the promotion of which they were enabled, by severe and protracted labours, to contribute a sum, which, at the close of the Mission, was found to amount to eighty thousand pounds sterling."

"The Serampore missionaries never considered themselves but as the simple pioneers of Christian improvement in India; and it is as pioneers that their labours are to be estimated. In the infancy of modern missions, it fell to their lot to lay down and exemplify the principles on which they should be organized, and to give a right direction to missionary efforts. They were the first to enforce the necessity of translating the Scriptures into all the languages of India. Their own translations were necessarily and confessedly imperfect, but some imperfections may be forgiven to men who produced the first editions of the New Testament in more than thirty of the Oriental languages and dialects, and thus gave to the work of translation that impulse which has never subsided. They were the first to insist on the absolute exclusion of caste from the native Christian community and church. They established the first native schools for heathen children in the north of India, and organized the first college for the education of native catechists and itinerants. They printed the first books in the language of Bengal, and laid the foundation of a vernacular library. They were the first to cultivate and improve that language and render it the vehicle of national instruction. They published the first native newspaper in India, and the first religious periodical work. In all the departments of missionary labour and intellectual improvement they led the way, and it is on

the broad foundation which they laid, that the edifice of modern Indian missions has been erected.”*

CHURCH
OF
ENGLAND.

In 1803, a few years after the Serampore missionaries began their work, the Revd. David Brown, their old friend, who had now become Provost of Fort William, purchased a house (Aldeen House) on the banks of the river, to the south of the town, and continued to reside there till his death in 1812. In 1805 the Revd. Henry Martyn arrived from England as a Chaplain on the Bengal establishment and was stationed at Serampore till October 1806. The Revd. Daniel Corrie also came to Bengal in the latter year, and both he and Martyn resided at Aldeen House. Here they and Brown worshipped in an abandoned temple, commonly called the Pagoda, which was included in Brown’s purchase. He fitted it up as an oratory, and “consecrated it by a prayer-meeting to the service of the living and true God, Whose praises now resounded through the arches which had so long echoed the peans of the idol.... In that Pagoda, which is yet the first object which meets the eye in sailing up from Calcutta towards Serampore, every denominational feeling was forgotten, and Carey, Marshman and Ward joined in the same chorus of praise with Brown, Martyn and Corrie.”†

All three played a great part in the history of Anglican Missions. Brown may be regarded as the parent of missions of the Established Church in this part of India—he has indeed been called “the father of evangelical religion in Bengal.” Corrie devoted his life to the evangelistic cause and was the first Bishop of Madras. Martyn left a high reputation as a missionary, short as his career was, for he died in 1812 in Armenia; there, according to an epitaph by Macaulay, “in manhood’s early bloom, the Christian hero found a pagan tomb.” The Revd. Cladius Buchanan, then Vice-Provost of the College of Fort William, was also a frequent visitor to Aldeen House, where he frequently discussed his scheme for the appointment of Bishops in India. Owing largely to his exertions, the prohibition on missionaries residing in India was removed in 1813, and an ecclesiastical establishment was sanctioned, Bishop Middleton being appointed the first Bishop of Calcutta in 1814.

His successor, Bishop Heber, who delighted in calling himself “the chief missionary in India,” appointed the Revd. W. Morton to Chinsura in 1823. Mr. Morton, who was sent to Bengal by the Society for the Propagation of the Gospel, stayed here till

* J. C. Marshman, *Life and Times of Carey, Marshman and Ward* (1859), Vol. II, pp. 528-3.

† J. C. Marshman, *Life and Times of Carey, Marshman and Ward* (1859), Vol. I, pp. 246-7.

1837, when the society abandoned the Mission schools he had founded and its connection with the station.*

Another Mission established during the first half of the 18th century was that of the Free Church of Scotland under Dr. Alexander Duff. In 1844, after having founded and organized the Free Church General Assembly's Institution, Dr. Duff took in hand branch schools for the evangelization of rural areas by means of educated catechists and converts. As the resources of the Mission grew and more converts were ordained, stations were opened in succession at Bānsberiā, Chinsura and Mahānād. "The story of Bansberia," writes Dr. George Smith, "illustrates the enthusiasm with which, not only in Calcutta, but to the farthest confines of India, good men, in the army and the civil service, sought to mark their sympathy with the Free Church Mission. On being driven from Ghoshpāra, where the two ablest converts had begun a mission among the new sect of the Kartābhajas, Dr. Duff resolved to establish a settlement in another country. He crossed the river Hooghly to its right bank, leaving the whole country on the left to the Established Church. A few miles to the north of the county town of Hooghly district he discovered the school-house of the Brahmo Samāj of Calcutta closed and for sale. Dwarkā Nāth Tagore, the successor of Rammohan Rai, had died in England, and his son was unable to maintain the educational work of the sect. The perpetual lease of the grounds, as well as the large bungalow, was purchased by Dr. Duff, whose first object it was to erect substantial buildings for a Christian High school. For this there were no funds since the expenditure at Ghoshpāra. It was Sir James, then Major Outram, who came to the rescue."

Outram had received £3,000 as his share of the prize-money obtained in the conquest of Sind. He had protested against the annexation as an act of "rascality," and regarded his share as "blood money." Refusing to touch a farthing of it for his own personal use, he distributed it all among the philanthropic and religious charities of Bombay, except Rs. 6,000 which he offered to Dr. Duff. With this sum Dr. Duff was able to erect in 1845 a Mission school on the banks of the Ganges. The school continued to work for about 35 years, but was closed in 1882, when the building was sold to Bābu Lalit Mohan Singh, late Vice-Chairman of the Hooghly District Board. Of the work carried on here, Dr. Smith wrote as follows in 1879:—"The Mission-House has been a source of numberless blessings to the neighbourhood; from its pupils a goodly number of conversions

* Long, *Handbook of Bengal Missions* (1848), pp. 276-8.

have sprung with a wide diffusion of Christian knowledge. The building still perpetuates the political purity and English uprightness of Outram. The resting-place in Westminster Abbey, and the equestrian statues by Foley, on the Thames Embankment and fronting the Calcutta Clubs, commemorate his victories in Persia and the relief of Lucknow. But let not the Sind blood-money and Duff's Bānsberiā school be forgotten, though recorded not on living marble or enduring brass."*

* Life of Alexander Duff (1879), Vol. II, pp. 46 51.

CHAPTER VI.

PUBLIC HEALTH.

HOOGHLY district has no great reputation for healthiness, CLIMATE. though it is not so insalubrious as it was 30 or 40 years ago. The climate is hot, moist and relaxing. The surface is but little above sea-level, and many of the rivers have silted up to such an extent that, after the rains, they are represented by a series of stagnant pools or have only an attenuated sluggish stream. During the monsoon, from July to September, vegetation is rank, and the water becomes thick and muddy. The result of such unfavourable conditions is that in September fever, with bowel-complaints, breaks out in an epidemic form, and continues to be more or less virulent till the middle of January. The general health then improves till March. During the hot weather the sources of water-supply are apt to dry up, producing epidemics of cholera and dysentery. Towards the end of May and the beginning of June the weather again becomes oppressive, hot and sultry, heralding the approach of the monsoon. May to July are, on the whole, the healthiest months, and then the period from the middle of January to the middle of March. November and December are the two worst months, i.e., the mortality is heaviest. The least unhealthy area is the Arambagh subdivision, especially the flood-swept tract east of the Dwarkeswar and west of the Damodar; but Arambagh town has now a bad reputation, so much so that officers are said to dread being posted there. The most unhealthy part of the district is the Hooghly subdivision, especially Balagarh thana and the inland thanas of Dhaniakhali, Polba and Hooghly (rural).

Prior to 1892 there were so many changes in the system of VITAL registering vital statistics, that it is unsafe to draw any inferences STATISTICS. from the figures compiled before that year. The returns now prepared are also, it is true, not so reliable as could be desired,

but they are sufficiently accurate for calculating the comparative growth of the population and for gauging the relative healthiness and unhealthiness of different years.

Excluding the returns for 1892, when registration was admittedly incomplete, the statistics for the 15 years 1893-1907 show an average birth-rate of 30·24 per 1,000, the lowest ratio recorded in the whole Province. The yearly birth-rate has varied from 34·94 per mille in 1904 to 26·87 in 1896 per 1,000, the very low birth-rate in the latter year being probably an after-effect of the extreme unhealthiness of the preceding year. The deaths during the same period (1893-1907) averaged 35·20 per mille, thus exceeding considerably the annual recorded birth-rate; the yearly death-rate varied from 40·73 in 1907 to 21·94 in 1906. The poor vitality indicated by this high death-rate and low birth-rate furnishes another proof of the unhealthiness of the district. Indeed, were it not for an influx of immigrants to the Serampore subdivision, the census of 1901 would have shown a decrease in the population: even in spite of immigration, the Sadar subdivision showed in 1901 a decrease of 0·3 per cent. The unhealthiness of the latter subdivision is exemplified in its two municipalities of Hooghly-Chinsura and Bansberia; for in the ten years 1893-1902 Hooghly town had an average death-rate of 50·43 per mille against a birth-rate of 28·42, while Bansberia had an annual death-rate of 50·02 against a birth-rate of 26·89 per mille. It is no matter for wonder, therefore, that the population in the former town decreased from 33,060 in 1891 to 29,383 in 1901, and in the latter from 6,783 to 6,473. The town of Arambagh appears to have suffered almost as much as these two municipalities, its average death and birth-rate for these ten years being 38·37 and 27·29 per mille, respectively.

Infantile mortality. Infantile mortality is high, and it is estimated that more than a third of the children die within five years of birth.

The percentage of deaths is highest under the age of one, and the incidence of mortality is greatest in the winter months.

PRINCIPAL DISEASES. The registration of deaths caused by fever is notoriously inaccurate, as a considerable number of deaths due to other diseases, such as pneumonia, pleurisy, etc., are ascribed to fever; but, for comparative purposes the figures may be accepted. They show a high mortality, the annual death-rate during the 15 years 1893-1907 averaging 25 per mille, or about 70 per cent. of the total number of deaths.

The following account of the types of fever and their causation is extracted from a note kindly communicated by Lieutenant-Colonel D. G. Crawford, Civil Surgeon of Hooghly:—

"Malarial fever is still the prevailing disease of the Hooghly district, though fortunately it is no longer the scourge that it was 50 to 30 years ago. Something has been done since that time to alleviate its ravages, particularly the flushing of some of the 'dead' rivers of the district, since the construction of the Dānkuni drainage channel in 1873 and the opening of the Eden Canal in 1881. Still, however, the physical conditions of the district remain much as they were half a century ago; and thus they must always remain, for no human agency can alter them. The district is little above sea-level, it has a heavy rainfall, it is traversed by numerous 'dead' or silting-up rivers, and it is chiefly devoted to the growth of rice, a crop which requires the ground to be a swamp during several months of the year for its cultivation. These conditions necessarily lead to its being waterlogged in the rains. Practically, every house built in the district necessitates the excavation of a small tank or pit (*dolâ*) to get the earth, which forms a plinth, to raise the house above flood-level. Efficient drainage is an impossibility, as there is not sufficient fall. The tanks which abound in the towns—in the Hooghly-Chinsura municipality alone there are 700—the drains, with their inefficient fall, forming chains of stagnant pools instead of running streams, and the vast expanses of rice cultivation, all supply ample breeding grounds for the mosquito by which malarial fever is spread. After allowing for errors in registration, the fact remains that the mortality from fever, including its most common and fatal sequela, viz., enlargement of the spleen, is very high. Of the other diseases which also bear the name of fever, enteric or typhoid fever certainly occurs. I have seen cases in both adults and children. I have never seen cases of typhus or of relapsing fever. Cerebro-spinal fever has been seen, but is rare."

During the third quarter of the 19th century the district was devastated by a peculiar type of malignant malarial fever. It was commonly known as "Burdwan fever," though Hooghly suffered as much as Burdwan. It was endemic and became epidemic generally. In its worst phases the fever assumed a tendency to congestion of some vital organ, most commonly the brain or lungs; and among the commonest sequelæ were enlargement of the liver and spleen. Its chief peculiarity was the tendency to a relapse or a succession of relapses; and, in some cases, sudden and great depression of vital energy followed.

"This fever," writes Colonel Crawford, "appears to have first attracted notice in the Jessorâ district about 1825; it began to affect the Nadia district about 1832; and it came across the

Bhāgirathi or Hooghly river into the Hooghly district in 1857-59. In these years Bandel, Bānsberiā and Tribeni suffered greatly from the epidemic fever. It reached Pānduā in 1862, Dwārbāsī in 1863; spread along the banks of the Kānā Nadi and Saraswati rivers in 1864; reached the Kānā Dāmodar in 1866, and the east bank of the Dāmodar in 1867. Jahānābād (now Arāmbagh) was attacked in 1868 and Goghāt thāna in 1869-71. The Serampore subdivision suffered severely in 1871-73. The total duration of this epidemic of fever in the Hooghly district may be said to have been 20 years, viz., from 1857 to 1877, though its ravages did not last for so long in any one place, the usual duration of the fever in each of the villages attacked being from three to seven years. The mortality was enormous, being estimated by various observers at from one-third of the whole population up to nine-tenths in certain very severely affected places. Rich and poor, old and young, all classes seem to have suffered alike.

"Many officers were, from time to time during the prevalence of the epidemic, deputed to make special enquiries into the origin, cause, and type of the fever, and the condition of the affected tracts. The general consensus of opinion was that the disease was a malarial fever of an intensely aggravated type, attended by an unprecedented mortality. The causes most generally assigned were over-population and obstruction of drainage, caused by the silting-up of rivers. But it cannot be said that any completely satisfactory reason has been put forward, which accounts for the outbreak of the fever, its gradual spread from east to west, and its disappearance. The fever was called by the natives *jwar-bukār* (literally, fever without sense), i.e., fever with delirium, a term which in recent years has also been applied to cases of plague. During the 12 years 1863-74 no less than 51 temporary epidemic dispensaries were from time to time opened and closed in this district alone."

Cholera. Cholera has long been endemic in the district, but so far as can be ascertained, there have not been such widespread epidemics as in other districts, like Puri and Purnea. The rural tracts do not suffer so much as the towns on the Hooghly; in fact, one or other of these seven municipalities usually heads the list as regards the mortality reported under this head from the different registering areas. The deaths are fewest in the rains (June to October), and are usually most numerous in November-December or March to May, the incidence being greatest in April. During the last 30 years, the highest mortality from cholera was recorded in 1896, viz., 4,876 deaths, and the next highest (4,141) in 1907. In

the former year Kotrang stood first with the very heavy death-rate of 16·65 per mille, followed by Uttarpārā (14·02) and Serampore (13·02). In the latter year all the riparian towns were more or less affected, Serampore suffering most severely from a virulent outbreak early in August - an uncommon time for cholera to be epidemic in Bengal.

Next to cholera, the largest number of deaths are ascribed to Bowel diarrhoea and dysentery, these diseases being grouped together under one head. They prevail throughout the year, the incidence of deaths being greatest from October to February, especially from December to February, and lowest in the hot weather. The yearly variations are small, the death-rate not rising above 2·65 (in 1896), or falling below 1 per mille. As in the case of cholera, the towns, especially Serampore and Uttarpārā, suffer more from these diseases than the rural tracts. Hooghly being one of the few districts in Bengal in which a high mortality from bowel complaints is usually reported, Captain W. C. Ross, I.M.S., Deputy Sanitary Commissioner, made a special enquiry into the causes of their prevalence in January 1906, the area selected for investigation being the three thānas, Singur, Krishtanagar and Arambagh. His conclusions are summarized as follows:—

Dysentery is prevalent, especially in Arambagh thana, but is not generally of a severe type, and does not constitute an important cause of death, except in Arambagh thana. (2) Diarrhoea is the heading under which most of the diarrhoea and dysentery deaths are returned, except in Arambagh thana where the numbers are nearly equal. (3) Again, except in Arambagh thana (though there are some even there), a larger number of the deaths from diarrhoea are due to terminal diarrhoea in cases of fever (*trypanosomiasis?*). This error in the returns greatly magnifies the dysentery and diarrhoea death rate. (4) A small number of the deaths returned under dysentery and diarrhoea may be due to cholera (atypical and lingering cases). (5) Infantile diarrhoea is remarkable for its rarity, but simple diarrhoea, especially amongst old and debilitated people, is more frequent as a cause of death.

It would seem that the incidence of dysentery is directly associated with the quality of the water-supply. In all these thānas the water-supply is bad in most places. The river water (above the tidal areas) is apparently pretty good, but in the non-riparian areas tanks and *dobas* serve all purposes. The reservation of one tank (if there is one) in each village, or the construction of wells for use for drinking and cooking purposes only, seems to be the only hope of diminishing the mortality from dysentery and preventing epidemic outbursts of cholera. "From

the experience obtained at Arambagh, there is no difficulty in getting people to use well water when it is made available: they are only too glad to get the chance, and come long distances to get good water for drinking."

As regards the clinical history of the disease, it generally affects old people over 50 years of age. "Persistent fever, generally of a quotidian type, comes on and continues for several months; the spleen is invariably enlarged, and later the liver generally becomes enlarged also. Emaciation and anaemia are always present and progressive: there is often oedema of the feet, ankles, etc.; jaundice frequently supervenes; and the case ends in a terminal diarrhoea of two or three weeks' duration. The clinical picture here represented almost compels one to believe that the disease is Trypanosomiasis."

Small-pox. Small-pox generally breaks out towards the end of the cold weather and lasts for two or three months, i.e., up to the first half of May. The number of deaths is, however, small, the ratio not rising above 40 per mille except in 1906 and 1907, when it was .62 and .88, respectively. The disease, as a rule, causes more deaths in the towns than in the rural tracts, Serampore, Bhadrashwar and Hooghly showing the highest proportionate mortality; the high death-rate in the towns is partly due to imported cases, chiefly from Calcutta. On the other hand, the small-pox death-rate in 1907 was 4.96 per mille in Polba thana, a typical rural area, whereas it was 1.19 per mille in Hooghly-Chinsura town.

Plague. Plague was first noticed in the district in 1899, but the total mortality due to it has hitherto been below one hundred each year, except in 1903 and 1905 when it rose to 154 and 292, respectively, while in 1906 and 1907 the deaths fell to 7 and 12, respectively. Deaths occur chiefly from February to May. Chandernagore and Hooghly-Chinsura town are the only places in Bengal proper, outside Calcutta, where plague has been epidemic. From January to May 1905 there were 254 cases with 204 deaths in the latter town. Figures for Chandernagore are not available, but the number is believed to have been proportionately higher.

Other diseases. Among other diseases, syphilis and gonorrhœa are common. Elephantiasis is met with, though not so often as in some other districts like Puri. Abscesses are very common, and so are ulcers of all kinds, the damp climate not being favourable to the quick healing of skin lesions.

Infirmities. Blindness is less common than in any other district of West Bengal (except Howrah), only 93 males and 78 females per 100,000 being returned as blind in 1901. Operations for cataract, the

chief cause of blindness among the aged, are comparatively few. Only 2,041 cases of eye-disease were treated throughout the district in 1900, the largest number treated in any dispensary being 346 at the Imāmbārā Hospital. Probably, most of those who have cataract, and are willing to be operated upon, go to Calcutta for the operation ; from at least half of the district it is easier to get to Calcutta than to Chinsura. The deaf-mutes enumerated in 1901 represented 66 males and 46 females per 100,000, the lowest ratio in West Bengal except Midnapore ; while the insane were returned at 43 males and 21 females per 100,000. Considering the poor vitality of the people, the comparatively greater strain of town life, and the fact that the proportion of residents in urban areas is greater than in any other Bengal district, the latter percentage is noticeably small.

Leprosy is rare, the number of lepers reported in 1901 being Leprosy, only 362, representing 55 males and 14 females per 100,000. In view of the fact that Hooghly adjoins Burdwan and Bānkura, two of the worst leper areas in India, this percentage is also surprisingly small. The census statistics are confirmed by the experience of the Civil Surgeon, Lieutenant-Colonel D. G. Crawford, I.M.S., who states that during seven years in the district he saw few cases of leprosy. Popularly the disease is believed to be due to some heinous sin in a previous life.

The Metropolitan Circle of Vaccination, including Hooghly VACCINATION. district, was created in 1869, and Act IV of 1865 prohibiting inoculation was extended to it in 1871. Act V of 1880, by which vaccination is compulsory in municipal areas, was extended to the municipality of Hooghly-Chinsura in 1881 and to the other municipalities of the district in subsequent years. In 1892 the control of the Vaccination Department in rural areas was transferred from the Deputy Sanitary Commissioner to the Civil Surgeons.

The general attitude of the people towards vaccination in this district is one of passive acquiescence, combined with a strong objection to payment of the fees prescribed for vaccination by licensed vaccinators. The lower classes still prefer to seek protection against small-pox epidemics by offering *pūja* to the goddess Sitalā. In 1907-08 the number of persons successfully vaccinated was 28,342, representing 32 per mille of the population, protection being afforded to 42.41 per cent. of infants under one year of age. In the preceding five years the annual number successfully vaccinated averaged 28.37 per 1,000 of the population.

Before the introduction of vaccination, inoculation was in ^{Inocula-} common use as a protection against small-pox. It was performed ^{tion.}

by a class known as *Acharjyas* or priests of the goddess Sitalā Devi. They inserted in the skin of the forearm a minute portion of the virus found in the vesicles of a small-pox patient, and after sprinkling the part with Ganges water, tied a strip of cloth round it. Small-pox pustules appeared, and after considerable inflammation and sometimes prostration, the fever abated, usually on the 16th or 17th day. Inoculation is now no longer practised.

MEDICAL
INSTITU-
TION.

Public.

Serampore	.	1836
Imāmbārā Hospital	.	1836
Uttarpurā	.	1851
Dwarbasini	.	1856
Baidyabati	...	1857
Ārāmbāgh	.	1871
Rishra	..	1873
Bainchi	...	1878
Bhadreswar	.	1885
Khanakul	..	1893
Mandilal	...	1893
Hooghly Female	.	1894
Balāgarh	.	1894
Itachona	...	1901
Bhandarhati	.	1905
Haripal	.	1908

Private.

Imāmbārā (private)	.	
Raghunāthpur	.	1858
Tarakeswar	.	
Tolāphatuk (Chinsura)	.	1905

There are 16 public dispensaries and hospitals in the district, besides four private charitable dispensaries not under Government supervision, as shown in the marginal statement, which gives the places at which they are situated and the dates of their establishment. The hospital at Serampore, which was established through the exertions of Dr Marshman, was transferred in 1870 to the control of the municipality, and is now called the Walsh Hospital after a former Commissioner of Burdwan. It is maintained partly from the municipal fund partly from subscriptions, and partly from miscellaneous receipts, including securities to the amount of Rs. 4,000. An out patient block

was erected in 1906 at a cost of Rs. 11,000, through the liberality of the late Babu Nandalal Gosain and his brothers; and the hospital, which has since been rebuilt from subscriptions supplemented by a Government grant, now contains 34 beds for males and 8 beds for females. The number of out-door patients is the largest in the district, averaging 47·64 daily in 1907, while the daily average of indoor patients was 21·69. The Imāmbārā Hospital is maintained almost wholly from the Mohsin Fund with the help of private subscriptions from mills on the other side of the river. This hospital was established through the exertions of the then Civil Surgeon, Dr. T. Wise. It was first located in a hired house in Chauk Bazar and then in a house in Mogaltuli Lane, formerly occupied by the Madrasa, and was under the charge of the Civil Surgeon. In 1839 Dr. Wise was succeeded by Dr. Esdaile, an enthusiast for medical mesmerism, through whose exertions some professional mesmerisers were added to the staff. It had also a Musalmān department for *Yunani* medicine and a *dai* class from 1872 to 1878; this class was started again in 1902. In 1894, the

hospital was removed to its present site in one of the smaller buildings of the old barracks. An operation room was added in 1898, and an out-patient block in May 1906, at a cost of about Rs. 11,000, of which Rs. 5,000 was contributed by Rai Bahādur Baroda Prasanna Somi and Rs. 4,000 by the Mohsin Fund; in 1908 a new and up-to-date operation room was built at a cost of Rs. 4,730 raised by public subscriptions. The building contains two surgical wards with 16 beds, a medical ward with 8 beds, a dysentery ward with 8 beds, a cholera ward with 2 beds, and a pauper ward with 6 beds, in all 40 beds.

Besides the Serampore hospital, there are municipal dispensaries at Rishra, Baidyabati, Bhadreswar and Arāmbāgh; while the District Board maintains dispensaries at Balāgarh, Khānākul, Bhandarhati and Haripāl. In-patients are received at the Arāmbāgh dispensary; the other six afford out-door relief. The dispensary at Uttarparā contains 16 beds for males and 4 beds for females and is maintained by an endowment given by the Mukherji family of Uttarparā and by Government contributions. That at Dwarbasini is maintained chiefly by Rāja Piāri Mohan Mukherji, the Government and District Board also making small grants. The Bihāri Lal dispensary at Bainchi, which has 4 beds for males and 2 beds for females, is wholly, and those at Mandalai and Itachona mainly, kept up from private endowments. The Bainchi dispensary owes its existence to an endowment of a lakh and-a-half of rupees left by Bābu Bihāri Lal Mukherji, zamindār of Bainchi, for a school and a dispensary. The Mandalai charitable dispensary was established in 1893 by Dr. Bholānath Bose, who left his property for charitable purposes. The Itachona dispensary owes its origin to the liberality of a zamindār named Srinārāyan Kundu, and the Bhandarhati dispensary to that of Babu Girish Chandra Chatterji, a pleader-zamindār of Howrah, who gave a building and the sum of Rs. 5,000: the District Board, however, maintains the dispensary. The most recent dispensary is that at Haripāl, which was opened in 1908, Srimati Sushila Devi giving a house and Rs. 25,000 to the District Board which maintains it.

There is one female hospital located in a building adjoining the Imāmbārā Hospital which was opened in July 1894. Both in-patients and out-patients are treated here, the daily average in 1907 being 15 and 42, respectively. There is also a Yundī dispensary in the Imāmbārā under the charge of a *hakim* or native doctor. A small private dispensary is kept up at Tārakeśwar by the Mahant and at Raghunāthpur by Piāri Mohan Rai, a grandson of Rāja Rām Mohan Rai. There was formerly a

dispensary maintained by the local zamindár at Sikandrapur, but it was closed in 1905. Another maintained by the Free Kirk Mission at Tribeni was closed in 1902, but the Bainchi estate is now building an out-patient dispensary there and will, it is reported, wholly maintain it.

There is accommodation for in-door patients at Hooghly, Serampore, Arambagh and Bainchi, and in the Hooghly Female Hospital. In the other dispensaries out-door patients only are treated. The location of the various dispensaries, public and private, shows that the towns along the river are fairly well provided with medical aid, but that the great block between the East Indian Railway line and the Dámodar, which suffers from malarial fever, gets little qualified medical help. Arambagh and Khánakul thánás, between the Damodar and Dwárakeswar, get even less, and Goghát thána west of the Dwárakeswar none at all.

MEDICAL
PRACTI-
TIONERS.

At the census of 1901, 348 persons were returned as certificated practitioners, 1,431 as practitioners without diplomas, 312 as midwives, and 92 as compounders, etc. This gives a total of 2,183 for the whole district, excluding the small number of those in Government service who are confined to the towns; and it is a fair inference that the staff of medical men is inadequate, especially in the rural areas. The bulk of the Hindus and Muhammadans have not yet lost faith in the old systems of medicine, *Karuáj* or *Yundáni*. But *hakims* are no longer available, and *karirájes* resident in the district are few and far between. Those who are better off often consult the native physicians of Calcutta, while patent medicines command a growing sale. A few homoeopathic and allopathic doctors practise in the mofussil; but their number is very limited, and their experience is chiefly confined to the common cases of malarial fever, cholera or bowel-complaints. Quacks are fairly common, and barbers still perform simple surgical operations. Occasionally also up-country men, especially Punjabis, operate for cataract. Midwives belong to the lowest castes, such as Hári, Muchi, Kaorá and Dóm, with a sprinkling of Bagdis. They are ignorant and illiterate, but from constant practice have a large experience of ordinary deliveries. The profession is generally hereditary, passing from mother to daughter.

CHAPTER VII

—
AGRICULTURE.

THE general characteristics which distinguish agricultural conditions in the deltaic plains of Bengal are strikingly exemplified in the district of Hooghly. The rainfall is regular and copious, the soil is fertile, and it is periodically enriched by fresh deposits of silt from the overflow of the rivers. The latter are constantly carrying on the work of erosion and accretion, of soil denudation and formation, but the process of soil formation is the more active of the two. The manner in which a large river with a steady slow current acts as a land-builder is best seen in thāna Balāgarh, where every year the Hooghly (Bhāgirathi) throws up *chars* after the rains, either in its bed or along its bank. If not swept away in a year or two, the *chars*, when sufficiently raised above flood-level, are eagerly sought after by the ryots. Being renovated annually by deposits of silt, they require no manure, and they grow splendid *rabi* crops of pulses, mustard, tobacco or vegetables. The lands along the river are similarly raised by accretion, and are also made to yield *rabi* crops, if high, and rice, if low-lying ; but a large proportion, not receiving fresh silt deposits, remains waste, and are covered either with coarse grass or jungly undergrowth.

Thānas Arāmbāgh and Khānākul present many of the typical features of a tract exposed to river floods. Here the Dāmodar river, rushing down from the Chotā Nāgpur plateau in a bed too narrow for the passage of its flood water, and restrained on the east by a high continuous embankment, spills over its right bank during the rains. On this side the stream, sweeping over the lowlands, deposits fine or coarse sand, the detritus of the uplands. The low lands are more or less covered with grass, but on or near the bank, where they are enriched by silt, produce good *rabi* crops. The higher lands, which are comparatively scarce, are occupied by houses or home-stead gardens growing vegetables, and, somewhat lower down, by winter rice crops.

A third aspect of an alluvial plain is seen in the Serampore subdivision and the rest of the Sadar subdivision. This tract is protected from river floods by high banks or artificial embankments, but is liable to be submerged by excessive rain. The lands, whether high or low, are extremely fertile. The uplands yield fine crops of vegetables, and land at a slightly lower level *aus* rice or jute alternating with *rabi*. The lowlands, enriched by the drainage and refuse of the villages, are eminently adapted for the cultivation of winter rice. Southwards, in the Serampore subdivision, the lowest lands receive the drainage from the whole of the northern tract, which is unable to find an outlet into the rivers. They are consequently converted into extensive marshes covered with reeds, sedges and coarse grasses, but winter rice grows well on their borders.

In the thāna of Goghāt to the west the level surface of the recent alluvium is no longer seen. The country is composed of old alluvium and dis-integrated laterite, and the surface is undulating, being broken by the scouring action of the rivers and surface drainage. Rice and a little pulse are grown, chiefly along the banks of the hill streams; but much of the land is barren, or is covered with thorny plants and scrubs intermixed with trees.

RAIN-FALL.

The rainfall, averaging nearly 60 inches in a year, is more than sufficient for even such a semi-aquatic plant as rice—indeed, 45 to 50 inches would suffice for the usual crops, if timely or evenly distributed. According to the ryot, a little rain in *Paus* (December-January) is good for the *rabi*; and light showers in *Māgh* and *Phālgun* (February and March), besides strengthening the *rabi* crops, facilitate ploughing. Heavy rains are necessary in *Asārh* and *Srāban* (June and July) to quicken the growth of broadcast seedlings and to reduce the ground to the soft slush required for transplanting the young shoots from the nursery. The month of *Bhadra* (August-September) should be dry, in order to prevent the winter rice plant rotting, and to permit the successful reaping of early rice and jute. In *Aśvin* (September-October) there should be fairly good rain, so that the winter rice just coming into ear may ripen properly; and there should be no winds in the following month to blow down the mature grain. Finally, no rain is wanted in *Agrahāyan* (November-December), otherwise, the rice stalks rot in the fields before reaping.

The general slope of the country is from north-west to south-east. Heavy rain for several days together on the Chotā Nagpur plateau brings down floods in the Dāmodar and its branches, which do serious damage to the crops on its west bank. Similarly, a

heavy precipitation of rain locally swells the numerous silted-up channels in the Sadar and Serampore subdivisions ; and as they have no outlet into the main rivers, the water spills over on either side, to the consequent damage of the crops. The level of water in the marshes of the Serampore subdivision also rises, causing **SOILS**. loss to the winter rice crop grown along them.

Except in thāna Goghat, where the soil is composed of the detritus of the uplands, viz., broken laterite, *kankar* and older alluvium, the soil consists entirely of new alluvium. This alluvial deposit is 5 to 10 feet thick and rests on a sub-soil of tenacious clay, varying in thickness from 10 to 30 feet. The surface alluvium, where formed from the silt deposits of the Hooghly and its branch, the Saraswati, is of tough clay (*gentel*), but that formed from the silt of the Dāmodar and its branches is light and porous. At places the Dāmodar, like the Dvārakeswar, has deposited a layer of sand on the sub-soil, e.g., at Magrā and in thāna Arānbāgh. In the swamps, which receive the drainage of the villages, the bottom is of sticky tough clay. The soil in the north of the district is partly a laterite clay and partly a red-coloured coarse-grained sand, characteristic of the eastern Vindhyan formation.

Rice being the most important crop, the classification of the soil is sometimes based on suitability for its growth, e.g., it is sharp (*tex*) or otherwise; but the usual classification is according to level. The highest lands are occupied by houses (*bāstu*) and their compounds (*ud-bāstu*). The high lands adjoining them, on which vegetable gardens and orchards are found, are *dāngā*. Paddy lands at a lower level, which are almost always in the form of a saucer-shaped depression or dip, are divided into five classes. Land which ordinarily gets the right quantity of water, and is also enriched with refuse, is called *āval* or first class land; it is generally a plot in the deepest part of the fields or a zone round it. It is flanked on either side by a zone of *doem* or second class land, above or below which will be zones of *seyam* and *phāhāram*, i.e., third or fourth class lands. Land above the usual flood-level is called *sunā*, and consists of a mixture of clay with more or less sand.

The value of artificial irrigation is fairly well understood. **IRRIGATION.** It is essential for the cultivation of special crops, like sugarcane, potatoes, onions and betel leaf, and of the *boro* or spring rice. It is also often practised in the case of several *rabi* crops, and in years of "drought" for all crops. As the district has not yet been cadastrally surveyed, statistics of the irrigated area are not available; but 4,972-acres were irrigated in 1906-07 from the Eden

Wells.

Canal. A rough idea of the proportion of land under irrigation may perhaps be obtained from the figures for the *khās mahals* of the Burdwan Rāj lying within this district, which were cadastrally surveyed in 1889-92. Here, out of an area of 8,071 acres under cultivation, 877 acres were found to be irrigated (viz., 289 from wells, 258 from tanks and 330 acres from other sources), i.e., about one-ninth of the cultivated area.

Wells are not numerous and are not liked by the cultivators, though they are cheap enough, a *kachchā* well with pottery rings costing Rs. 40 to Rs. 100 according to the depth of water. The water-level varies according to the season, but usually is 6 to 20 feet below the surface in the summer. Water is generally lifted by lowering a jar with a rope, but sometimes, though rarely, the cultivators use the lever-lift (*lātha*) of Bihār, which is weightled by a stone or lump of mud and is worked by one man. By this arrangement water can be lifted from a depth of 10 to 15 feet, and a man can irrigate one-third of a *bighā* in 8 hours.

Tanks, *jhils* or water channels are most oft'n used for irrigation. No very large tanks are found, but tanks of moderate size and ponds abound. Most of the tanks are more or less silted up, and very few new tanks are being dug, for though their excavation and repair were formerly considered a religious duty incumbent on the well-to-do, this sense of obligation is dying out. The district is studded with numerous *jhils* or swamps, especially towards the south, and is intersected by a large number of streams (*khalas*), all, however, more or less dead after the rains. Still, they constitute the chief source of supply for irrigation. Smaller streams are sometimes dammed up for irrigating the *boro* crops in thāna Khānākul, but little use is made of the rivers, the banks b'ing generally too high and the water too far below the level of the fields.

Water-lifts.

Several kinds of water-lifts are used, of which the most common are the *siuni*, *dongā* and *teri*. The *siuni* is a thickly woven triangular bamboo basket, with four pieces of rope attached. Two men, each holding two ropes, stand at the mouth of the channel, dip the basket in the water, and then raise it to discharge its contents. If the water has to be raised more than 4 to 5 feet, another set of men work from a platform on a higher level. Two men can irrigate a *bighā* in about 8 hours. The *dongā* is a canoe-shaped wooden vessel, one end of which is placed at the mouth of the channel leading water to the field; the other end, i.e., the pointed end, rests in the *jhil* or pond and is moved up and down by a rope. By this contrivance one man can irrigate a *bighā* of land in a day. The price of a *dongā* is Ra. 3

to Rs. 5. Iron *dongas* are now gradually coming into use; their price is Rs. 12 to Rs. 15. When the water has to be raised to a considerable height, the *teri* is used. This is a lever-lift worked by means of a pole with a rope attached at one end and a large earthen pot suspended at the other end. One man dips the pot into the water, and two more pull down the rope and raise the full pot to the surface. Two sets of three men each can in this way irrigate one and a half *bigha* in a day. The price of the apparatus is from Rs. 4 to Rs. 6.

The following table shows the normal acreage of the principal crops and the percentage of each to the normal net cropped area, according to statistics compiled by the Agricultural Department in 1907:—

AGRICUL-
TURAL
STATIS-
TICS.

NAME OF CROP.	Normal acreage	Percentage on normal net cropped area.	NAME OF CROP.	Normal acreage	Percentage on normal net cropped area.
Winter rice ..	276,700	62	Summer rice ..	6,800	2
Sugarcane	7,200	2	Wheat	2,400	1
Total <i>aghani</i> crops ...	2,83,900	64	Barley	1,800	.
Autumn rice ..	45,500	10	Gram	2,700	1
Other <i>bhadai</i> cereals and pulses ..	600	.	Other <i>rabi</i> cereals and pulses ..	5,400	1
Other <i>bhadai</i> food-crops ..	2,600	1	Other <i>rabi</i> food-crops ..	10,300	2
Jute	55,500	12	Linseed	800	2
<i>Tid</i> (<i>bhadai</i>)	100	.	Rape and mustard	7,900	.
Total <i>bhadai</i> crops ...	1,04,300	23	<i>Tid</i> (<i>rabi</i>)	1,000	.
Orchards and garden produce ..	40,000	9	Other oilseed	2,700	1
Twice-cropped area ..	40,100	9	Tobacco	3,300	1
			Late cotton	2,000
			Other <i>rabi</i> non-food crops ..	1,800
			Total <i>rabi</i> crops ..	48,900	11

Rice forms the staple crop of district and is particularly well suited to the low damp lands, receiving an abundant rainfall, which make up the greater portion of Hooghly. Many varieties are grown, but the crops may be grouped under three main heads according to the harvest seasons, viz., *boro* or spring rice, *das* (literally *asu*, i.e., quick, early) or autumn rice, and *aman* (also called *haimantik*) or winter rice.

Boro rice is ordinarily transplanted along the banks of *Boro* marshes, or in very low lands which remain wet till well into summer. Ploughing is not required if the ground is of soft mud; otherwise one or two ploughings are given. It is sown in the nursery in November, transplanted in December, and reaped in April and May. This class of rice includes only coarse varieties, and the area of land which can be profitably reserved for its

cultivation is small. Only newly threshed grain will germinate properly, and the grain has to be prepared carefully before sowing in the nursery.

Aus rice is sown, chiefly broadcast, on *undā* lands and preferably loamy soils. It is sown in the latter half of May and reaped in September. It is harvested while yet slightly green, for if allowed to ripen fully, it will shed some of its grain, besides which the straw, being brittle, is apt to get broken. It is often followed by a second crop of pulses or oil-seeds. This crop, as a rule, yields only coarse varieties of rice, but a fine kind of *aus* has recently been introduced from the Central Provinces by the Agricultural Department, and its cultivation is gradually extending. Formerly *aus* was a fairly large crop, but of recent years it has been replaced to some extent by jute, which pays the cultivator better. On the other hand, owing to the price of jute having fallen and that of paddy and rice having gone up during the last two years, a considerable part of the land on which jute was grown two years ago was again put under rice last year (1908). In the sayings of Khanā we find several references to the autumn rice crop. *Aus er bhui' cle, pāter bhui' dāk.* *Vaishākher pratham jale, Aus dhān daigun phale.* *Aus dhan'r chāsh, lāge tin māsh, i.e.,* "The soil of *aus* is sandy, that of jute clayey. In the first rains of Baisākh (April-May), *aus* puldy yields double. The cultivation of *aus* paddy takes three months."

Winter
rice.

Aman rice yields the principal crop of the year. It is grown on lands lying below flood-level, except, of course, where the depth of water is so great as to preclude cultivation. To prepare the ground for the crop, the soil is frequently manured with cow-dung (20 to 50 baskets to a *bighā*), except in the lower lands where the manure would be dissipated in the water. After manuring, ploughing begins as soon as the soil has been sufficiently softened by rain, i.e., towards the end of winter or the beginning of spring. There are generally four ploughs to a *bighā*, and four ploughings before sowing and planting. The clods are then pulverized by drawing a *mai* or harrow over them. *Aman* rice may be sown broadcast, but is more usually sown in a nursery and transplanted into the fields. It is sown in May and June, and is transplanted in the rains, chiefly in July and August. It cannot be sown broadcast if the ground remains under water, or if it dries up early, or has been newly broken up. The usual quantity of seed is 16 seers to a *bighā*, or if sown broadcast 10 seers. The labour required for transplanting varies according to the distance of the fields from the village, the depth of water and other circumstances, but on the average it takes a man five days

per *bighā*. Harvesting begins on high lands in November or December, and is mostly finished by the end of January. On the lower grounds it continues till the end of February, and sometimes till the middle of March. The reaping is easy enough till the low lands are reached after the *āu*. The *dōm* rice may be got in dry, but the *seyam* and *chāhāram* crops have generally to be reaped in water. In dry reaping the straw with the paddy is laid in bundles on the fields in order to dry it, and after two or three days it is carried home for threshing. In wet reaping the heads of the stalks above water are cut and then carried to a dry spot for drying. Paddy reaped dry is usually threshed by beating the bundle against boards till all the grain is separated; the bundles of straw (*khar*) are then stored for sale or use. Paddy reaped wet is trampled out by oxen; the straw (*pat*) is useless except for feeding cattle. After threshing, the paddy is winnowed and stored in thatched granaries with split-bamboo walls (*marāis*).

The outturn naturally varies according to the nature of land, timely or untimely weather, and the care given to cultivation. On an average the outturn of *sāli awal* winter rice per *bighā* is estimated at 7 to 10 maunds of paddy and one *kāhan* of straw; and of *sāli dōm* at 5 to 8 maunds of paddy and the same quantity of straw. Some of the best lands, if manured, have been known to yield 12 maunds per *bighā*, but such a heavy yield is very rare. Generally speaking, the outturn, taken at the rate of 8 maunds of paddy and one *kāhan* of straw, would be worth in the selling season not more than Rs. 26 (24+2).

After rice, pulses are the most important of the food-grains. *Pulses*. Gram is grown on a small area, but other pulses, like *khesdri*, *mung*, peas and *masuri*, are favourite second crops. *Khesdri* or *tourā* is sown on *āus* land with barley, but more often on low rice lands, when the *āman* is damaged by floods or has a poor outturn. It is sown broadcast in October, grows slowly until the winter rice is harvested, then shoots up rapidly and is gathered in, February and March. It costs little to cultivate, but the yield is not large if the rice crop is good. It is a grain which owing to its cheapness is much used, in the form of *dāl*, by the poorer classes, while the straw is an excellent fodder for cattle. The other pulses form the main cold-weather crops of *sānd* lands. They are sown in October and November after ploughing and are reaped in February and March. The ploughing is more carefully done, the seed costs more, and the outturn is more valuable, furnishing the *dāl* eaten by the higher classes. The *olanda* or European variety of pea is largely grown

near the railway line from Hooghly to Howrah, and the produce is sold at a high price for export to the Calcutta market.

Oil seeds. Oil seeds, such as linseed, *til*, rape and mustard, are cold-weather crops grown only in small plots on high lands round the villages and on river *chars* which are periodically fertilized by new silt.

Jute. Jute is the chief crop of Hooghly next to rice and has largely replaced *bas* rice, but, as stated above, there was a shrinkage of its area last year (1908). In most villages it is raised on *sunā* lands that are not occupied by sugarcane, vegetables or orchards. The ground is usually manured with cow-dung or rich muddy earth dug up from tanks or ditches. After the first showers in May, the ground is ploughed and the seed sown at the rate of about two seers per *bighā*. The fields are then weeded twice or thrice before the heavy rains begin. In August and September the jute is cut, stripped of its leaves, carried in bundles to some pool or stream, and there steeped. This steeping process is called "retting." After a time the stalks are taken out and beaten, so as to extract the fibre. The fibre is cleaned, dried by hanging, and then put into drums ready for the market, the dry stalks being used as fuel, for thatching, or for fencing betel-leaf plantations. The outturn varies according to circumstances, e.g., the condition of the fields, the quantity of manure and the care given to cultivation; but for first class land the average outturn may be taken roughly as 4 to 6 maunds of fibre, and 8 to 10 bundles of stalks (*pākāti*); and for second class land 3 to 5 maunds and the same quantity of stalks. Sheorāphuli is the principal centre of the jute trade in the district.

Sugarcane. Sugarcane is grown on *sunā* lands, preferably heavy clay soils retaining moisture. The ground is prepared by ploughing and harrowing, and also receives irrigation, if the soil is light and porous. It is next manured with oil-refuse, cow-dung and tank mud. In January top cuttings, half a foot long, are placed with oil-refuse in holes arranged in rows a yard apart. In the four months preceding the rains (February to June) the surface is irrigated several times, and after each watering is hoed. Just before the rains break, the ground round the roots is cleared, old leaves, etc., being removed, and manure laid at the roots, after which they are carefully earthed over. During the next five months (from the middle of June to the middle of November) the leaves are usually twisted round the stems to prevent insects or jackals damaging the plants. As soon as the plants are large enough, they are tied together with leaves at the top to prevent the flexible

stems falling down. Cutting begins in January and may continue till April. The chief varieties are Bombay, *shamsārā* and *deshi*, *shamsārā* being the favourite in this district. The cultivation is exhausting to the soil and expensive to the ryots. The crop is, therefore, alternated with paddy or jute in the following rains, and potatoes or pulses in the next winter, so that the soil has a rest for at least a year and a half. The old wooden mill has disappeared and has been replaced by an iron crusher and pan, often of the Bihia pattern. A few of the canes are sold in the towns and rural *hats*; but most are crushed in the villages and the juice converted into *gur* or molasses.

Tobacco is a minor product, chiefly grown along the river Tobacco banks, on *chars*, and on the lands flooded by the spill water of the ^{and betel-}*Dāmodar*. Betel-leaf, which is more largely grown, is raised, especially by the Bārui caste, in bamboo enclosures with fences made of jute stalks. Betel grows best in a friable black clay resembling pond mud and containing a large amount of organic matter. The cuttings are planted in rows in February and watered daily for the first three months. The leaves begin to shoot in June and July, and continue to do so for a year. Old stems are cut down in April, when the roots send up fresh stems, which begin giving new leaves in June and July. In this way, fresh leaves may be got for several years; otherwise, the stems die in a year. The trailing plants have to be tied to supports of *dhonchā* stalks or split bamboo, and the soil manured from time to time with oil-refuse. The betel leaves of Begampur, a village a few miles west of Serampore, are well-known for their flavour, and are exported in considerable quantities.

The principal fruits of the district are mango, plantain, ^{FRUITS.} cocoanut, jack, papaya, pine-apple and custard-apple. Groves of mango and jack abound, especially in the Sadar subdivision. There are numerous varieties of indigenous mangoes, which, though stringy, are generally sweet. In the orchards of the well-to-do grafts of Bombay, Fazli and Lengrā mangoes are common, which give fine fruit, though rather smaller in size than up-country specimens. The jack fruit usually has a stringy pulp, but the best varieties are sweet and luscious. Pine-apples are regularly cultivated in homestead plots. They are usually large and palatable. The papaya grows almost wild in every homestead, and is a welcome addition to the daily fare, being eaten when unripe as a vegetable, and when ripe, as a fruit. Plantains are cultivated on an extensive scale, both unripe and ripe varieties, the chief varieties of the latter being the religiously pure *kāthāli*, the small but delicious *chāmpā*, and the large *mārtabān* or

martaman. Immense quantities are sold at the Sheorāphuli market. Cocoanut and date palms thrive, yielding fruit, cocoanut oil and date sugar. Of acid fruits, limes and tamarind grow well. The *tarmuj* or water melon, in two varieties, viz., *dhamashi* and *deshi*, sown in November, is largely produced in the hot season, and is exported in considerable quantities to Calcutta and other places. It grows best on sandy loam; and the soil near the Saraswati Khal and along the bank of the Dāmodar is said to be peculiarly suited to its cultivation. The cucumbers called *sashā* and *phutī* are also largely cultivated in the hot season in the beds of the Saraswati and the Dāmodar. Leeches, *jām*, *gulāb-jām*, *jāmrul* and guava are found in gardens on the outskirts of the towns.

**VEGETA-
BLES.** The district is noted for its large vegetable gardens, principally situated along the bank of the river Hooghly and the line of railway. Vegetables are also grown extensively round the villagers' homesteads and along the banks of the numerous *khalas* and streams.

Potatoes are largely cultivated along the old bed of the Saraswati, Kanā and Kānā Dāmodar rivers, and in smaller quantities throughout the Sadar and Serampore subdivisions. Several varieties of potato are grown, which may be grouped under three heads, *deshi* or indigenous, Bombay and Naini Tāl. The places especially noted for the cultivation of the B'mbay variety are Nalikul, Haripāl and Singur in the Serampore subdivision. The cultivation of potatoes was first introduced into Bengal by the English towards the close of the 18th century. For a long time the potato was objected to as an article of food by orthodox Brāhmans upon religious grounds—it is not admitted in the *bhoga* of the temple of Jagannāth; but now all who can afford to do so eat it without scruple.

The egg plant called *baigun* or brinjal (*Solanum n. elongena*) is a favourite vegetable. The seed is first sown in a nursery near the house of the cultivator in April and May, the young shoots being transplanted a month later, after a good shower, into a field which has been well ploughed and manured; they are planted in rows two or three feet distant from each other. The plants soon grow into shrubs about two feet in height, and are in bearing from October to about the following March, when they are cut down. A crop of *baigun* is very exhausting to the powers of the land, and cannot be grown on the same field for more than two years in succession. The variety of *baigun* called *muktakeshi* is considered the best. The finest kind of *baigun* is produced on the banks of the Dāmodar.

The cucurbitaceous plant called *patol* (*Trichosanthes dioica*) is largely cultivated in all its varieties, viz., *puro*, *deshi* and *dhali*. Sandy loam is the best land for it, and it is extensively grown on river banks and *chars*. Sown in October, it yields fruit from the latter part of February to the end of September. The leaves of the plant, called *palta*, are eaten with curry; and an infusion of the leaves is frequently prescribed by native physicians as an anti-bilious draught. Pumpkins are cultivated to a considerable extent, being generally grown near the house, with a thatch for the creeper to spread over. Occasionally the creepers are trained over the roofs of the houses, and it is no uncommon thing to see the thatch of a hut almost covered with enormous pumpkins. There are two varieties of *kumā* (*Benincasa cerifera*), viz., *deshi* or *chāl kumā* and *bilāt kumā*. The latter variety, which is considered to be the best, is largely cultivated in the western part of the district bordering on the Damodar river, and is exported in considerable quantities to towns along the Hooghly and to Calcutta. *Sakai-kand* or sweet potatoes are grown on sandy soils, being hardy plants growing on lands that will hardly favour any other crop. The yams called *mān kachū* and *guri kachū* are also cultivated, the latter largely in homestead gardens, besides the arum known as *ol*.

Cabbages were only introduced into the district about half a century ago, and they are still mostly grown from imported seed. For a long period the upper classes of Hindus had a great objection to eating them; but this prejudice has almost entirely died away, and cabbages are now a favourite article of food with a large portion of the population. Radishes are grown in October on high, well-drained, sandy loam, which should be repeatedly ploughed and harrowed, as the saying runs:—*Satek chāse mulā*, i.e., a hundred ploughings for radish. Turnips are also cultivated, but are eaten chiefly by Europeans and Muhammadans. This is the most recently introduced of European vegetables, and Hindus have not yet become accustomed to it as an article of food. Other common vegetables are onions, garlic, peas, beet, cauliflowers, beans, ginger and turmeric.

Among miscellaneous products may be mentioned chillies MISCELLANEOUS GROWN,
grown on homestead lands and often on newly formed alluvion; mulberries grown in the south of the Arambagh subdivision; bamboos grown in the compounds of most households; and the *hugla* reed, which is plentiful on the banks of the many marshes and swamps in the district. Indigo was formerly cultivated in the south, but all the factories have long since been abandoned.

EXTEN-
SION OF
CULTIVA-
TION.

Figures showing changes in the cultivated area for any lengthy period cannot be given, as the agricultural statistics of Howrah were incorporated with those of Hooghly until 1905-06. It appears, however, to be an admitted fact that nearly all the land at present cultivable has been brought under the plough and that very little is left fallow. It would seem, moreover, that the area cultivated with rice and jute is steadily increasing. The lands reclaimed by the Dankuni and Rajapur drainage schemes have been almost exclusively devoted to winter paddy, and the *sund* lands that grew autumn rice to jute. Sugarcane cultivation, which increased a little on the introduction of iron roller mills, is declining owing to the competition of imported sugar and molasses. Owing to the steady rise in the demand for and the price of vegetables and fruits, their cultivation is, on the whole, increasing. The returns submitted annually since 1901-02 show certain variations in the area under cultivation and under different crops. Firstly, the cultivated area has increased even in these few years. Though this may be partly due to more accurate preparation of the returns, the greater part is a real increase. There has been some expansion in the area under winter rice, but more in the area under jute, which has more or less replaced autumn rice, and partly also in the area occupied by mustard, miscellaneous food-crops, and orchards and garden produce. Secondly, the cultivation of *til* (sesamum) appears only in the returns during recent years. Thirdly, the acreage under linseed and sugarcane is nearly stationary, if not decreasing. Lastly, the area under pulses and miscellaneous non-food crops has largely decreased.

AGRICUL-
TURAL
METHODS.

The ryots of the Hooghly district, especially the Kaibarttas and Sadgops among the Hindus and a number of Sheikhs among the Muhammadans, are industrious and intelligent cultivators; and in the case of the immemorial crops of Bengal, such as rice and pulses, it is doubtful whether their ordinary methods of cultivation can be improved upon. In 1886 Mr. A. C. Sen, who had then lately returned from the Cirencester College, England, and had been deputed to make agricultural enquiries in the Burdwan Division, reported: "Very little can be suggested for the improvement of the cultivation of paddy, which has been so long under cultivation in Bengal, and grown under such varied conditions, that, taking the country as a whole, the ryot's knowledge regarding this important crop has attained a degree of perfection almost unprecedented in the history of agriculture."

The agricultural implements in common use are few in number and simple in construction. They are as follows :—(1) *Lāngal* or plough, with its different parts named *murd* or body, *isha* or beam, *phāl* or share, *bontā* or hilt. When in use the plough has a *jodl* or yoke, with an *ajkra* or rope. A smaller variety is used for ploughing the fields of *dus* paddy and maize, when the plants are a foot to a foot and a half high. (2) *Kodāli* or hoe, which is in constant use for the cultivation of special crops like sugarcane, potato, cabbage, etc., for turning up of the soil to any depth, and for making field ridges. (3) *Mai* or harrow, which consists merely of a piece of bamboo split in the middle with cross-pieces like a ladder. It is used for breaking up clods, pressing down the soil, levelling the ground and clearing it of weeds. It is drawn by bullocks, the driver standing on it in order to give it weight. (4) *Bida* or rake, a wooden bar about 4 feet long, with a few bamboo or iron tins attached. It is used chiefly to thin out the plants of *dus* which has been sown broadcast, to stir the soil, and to clear it of weeds. (5) *Phor* or weeding hook (6) *Pashuni*, a hand hoe. (7) *Kāste*, a sickle for reaping. The improved type of plough called the Sibpur plough, which is simple in make, is cheap, and ploughs deeper than the country plough, is used by some ryots, but there is no other noticeable innovation so far as implements of cultivation are concerned. Bihiā mills and iron pans are now extensively used for the manufacture of molasses, but these do not come properly under the head of cultivation.

Rotation of crops is practised and its value understood to a certain extent. The ryots know that certain crops, such as sugarcane and betel-leaf, are exhausting, and that the land must be kept fallow and given rest. Also, on high land they alternate *dus* paddy or jute with pulses, oilseeds or vegetables like potatoes; but an exception is made in the case of paddy, *dman* being sown year after year on the same field.

The ryots are generally careless about the selection of seed. *Seed.* A part of the produce is kept apart for the next crop, but nothing is done to exclude weak or diseased seed. Lately, however, the advantage of reserving the best specimens has begun to be appreciated, and the cultivators are gradually taking more trouble over selecting seed, especially in the case of imported crops, such as wheat, potatoes and European vegetables. In gardens belonging to the richer classes, moreover, care is taken to have seeds of good varieties, or to secure grafts of good fruit trees.

The advantage of manure is fairly well known in this district. *Manures.* The manures in general use are cow-dung, oil-cakes, pond-mud

and hide-salt. Every ryot has his dung-heap, to which he daily adds dung, wood-ashes, waste straw, vegetable refuse, etc.—in fact, all that escapes the pariah dog. The urine of cattle, a valuable manure, is, however, allowed to soak into the mud floor of the cow-shed, though the earth is occasionally dug out and used for manure. Cow-dung is used to a more or less extent for all the crops except pulses. It is carried to the fields in April and May, is first placed in heaps at intervals, and then spread over the fields. For potato cultivation it is applied to the fields in August and September. Castor and mustard oil-cake is now largely used for potatoes, sugarcane, ginger and cabbages. Pond-mud is considered a valuable manure and is most commonly applied to plantations of betel, mulberry and plantain. In a year of drought, the mud taken from the half dry ponds and tanks is applied extensively. Hide-salt, a cheap nitrogenous manure, is occasionally used to check an exuberant growth of leaves, and for paddy when suffering from the disease called *kadamurā*, which is itself the result of excessive manuring with pond-mud. Green manuring is not unknown in the district, e.g., in rice fields the soil, with the weeds in it, is turned over with a *kodāli*, and in a number of instances leguminous plants, such as *dhaincha*, *san* and indigo, are used to enrich the soil. Nitrogenous salts are little used, and would be practically useless for the most important crop, viz., *aman* rice, as they would be washed away when the land is submerged.

Cattle. The cattle of the district are of the same breeds as elsewhere in Lower Bengal. Cows and she-buffaloes are kept for trading purposes by Goālās, and cows and plough-bullocks by ryots generally. A few ponies are kept, chiefly by Muhammadans and up-country people; while the former and the lowest castes of Hindus tend fowls, ducks, goats and sheep. A few sheep are grazed in thāna Panduā for the Calcutta market. Pigs are bred chiefly by the Kaorās, a very low caste.

The oxen of the district appear to belong to a breed indigenous to Bengal, though it is impossible to say how long it has been domesticated. The breed appears to be more or less pure; but in the towns some intermixture has probably taken place with the Bhāgalpur breed and occasionally with other up-country breeds. The latter are not liked by the cultivators, as they are less hardy in this damp climate, eat more than double and do only half as much work again with the light country ploughs. A pair of good country bullocks is considered sufficient for 20 to 25 *bighas* sown with paddy, but of course this is dependent on a variety of other considerations. The cattle in the west are believed to be superior to those in the east, a

difference attributed to the difference in the climate. In the west buffaloes are sometimes employed for field work. They are stronger and work quicker than the oxen, but they cannot stand heat, and after 9 A. M. they are difficult to manage.

The margin of cultivation being so narrow, the cattle graze in Pasturage. the fields after the crops have been removed or pick up what they can in the open. On returning home they get a little green grass, some straw and about half a seer of oil cake. During the ploughing season some additional straw and a little oil-cake are often given to the working bullocks after midday. Grazing grounds are few and far between; in this connection, Mr. Carstairs remarked, as far back as 1883, in his report on the condition of the ryots in part of Chanditalā thānā:— “Rich men’s cattle can go in gardens, but poor men’s cattle have been deprived of their old common grazing grounds. These have been appropriated and rented out to cultivators by the zamindārs. The ryot turns his cattle into the paddy fields in the cold weather, but they pick a very scanty living up there. I only note here that the shutting up of the grazing grounds increases the expenses of the ryot, because he has to keep more food for the bullocks; because the want of freedom weakens the cattle and makes them less fit for work, and because they are more likely to fall victims to disease, and he will then have to buy new cattle... The *ais* or boundary ridges of fields used to be wide and suitable for the ryot’s walking along to his fields and very useful for grazing cattle on. They are now little mud threads. High rents and measurement have done this. No ryot can afford to leave so much land uncultivated. He cuts in on one side, and his neighbour has to resist or cut in on the other. I have seen cases where a man encroached on an *ai* and the ryot holding the field on the other side objected. But things like this are very difficult to check, for the mischief is done by inches.

“In all these matters it is the interest (possibly not real, but immediate) of the zamindār to let the mischief go on. If a man cultivates part of a grazing ground, rent is demanded. If he appropriates part of a road, this is assessed. If he encroaches on the *ai*, he cultivates all the more, and it is included in his *jot*. He will be all the more content to pay high rates. The zamindār does not usually live in the village. Want of roads or grazing grounds there does not put him to personal inconvenience. He may be as good a man as John Gilpin, but with him, too, ‘loss of pence’ is the main consideration.”

CHAPTER VIII.

NATURAL CALAMITIES.

Floods. THE district, being a low-lying tract with an abundant rainfall and intersected by three large rivers and numerous smaller streams, suffers more frequently from floods than from drought. Formerly floods were not only of frequent occurrence, but were also attended by great loss of life and property, especially during freshets, when the water in the rivers was banked up by strong southerly gales or high spring tides. Early records show that about 1660 A.D., a strong freshet in the Hooghly river swept away the old Dutch factory in Hooghly town; while on 3rd September 1684 the river rose so high that it was 3 or 4 feet above the level of the Hooghly Bazar and swept away more than a thousand huts in the Dutch quarters at Chinsura *. Such destructive inundations have been rare during the period of British rule, probably because the level of the west bank of the Hooghly has been gradually raised.

The Dāmodar has been much more mischievous than the Hooghly, and there is record of its ravages for more than a century past. On the 16th Aswin (about 1st October) in 1787, we find that the Dāmodar burst through its bank near "Barderee" and swept away "hāts, temples, ganjies and golāhs."† On the 26th September 1823 it again rose in high flood and bursting over its banks inundated the country up to the Hooghly river, which also rose to an unprecedented height. Chandernagore suffered considerably; in the streets of Serampore boats were plying, the College being surrounded by water; and in Hooghly town, Dharampur, Mällā Kāsim's hāt and Bāli were submerged and the roads rendered impassable. In the mofussil the police thānas of Rājbalhāt (now Kristanagar) and Benipur (now Balāgarh) were swept away, and the police officers had to take refuge in boats. The homeless villagers poured into the town of Hooghly, where they found shelter in sheds erected on the site of

* T. Bowrey, *Countries Round the Bay of Bengal*, 1669—1679, p. 170; Hedges' Diary, Yule, I, vol. I.

† Calcutta Gazette, 11th October 1787, Selections, I, 210.

the Mughal fort (the old court house). The distress which ensued may be gathered from the report that "the extent of injury that has been sustained is beyond human relief." Ten years later, on the 21st May 1833, the Dāmodar again flooded the district, washing away the bridges over the Saraswati at Tribeni and over the Magrā Khāl at Nayāsarai. Subsequently, in August 1844, the Dāmodar burst its banks and marginal embankments in 170 places and submerged the whole country between Bāli Diwanganj and Dhaniākhāli, the flood water spreading as far as Hooghly and Chinsura and filling up the ditches and drains of those towns. In September 1845 the Dāmodar again flooded the south of the district. The Burdwan and Chandernagore roads were under water in many places, and the four suspension bridges were threatened with destruction. The inner or zamindāri *bandhs* were so completely destroyed, that their owners never attempted to repair them; after the floods not a stalk of paddy was to be seen for many miles; and the inundation was described by one officer as "frightful." A drought following the flood intensified the distress, and people began to migrate to Calcutta and Serampore for work; but, beyond advances of Rs. 500 to each of the Subdivisional Magistrates of Dwārhātā (now Serampore) and Jahanabad for the relief of urgent cases of distress, no relief measures were deemed necessary.

The continued ravages of the Dāmodar attracted the attention of Government, and after protracted enquiries extending over several years the embankments on the left bank were strengthened, while those on the right bank were abandoned for a distance of 20 miles. Its flood water consequently poured over the western tract in thanas Jahanabad and Khanākul, destructive inundations occurring in this locality in August 1856, in July 1859 (over 267 square miles), in 1867, and in August 1885. The flood last mentioned was due to a continuous downpour of rain, which not only submerged the rice crops in the fields, but also caused high floods in the Hooghly, Rūpnarāyan, Dāmodar and Dwarakeswar rivers. The embankments were breached, and nearly the whole country laid under water. In the eastern portion of thanas Jahanābād (now Arāmbāgh) and Khanākul, the floods lasted for many days, whilst in several places they did not subside for over a month. It is an extraordinary fact that no loss of life from drowning was reported, but the health of the people suffered considerably, for cholera broke out in some villages and malarial fever prevailed. The damage done to the crops of the affected tracts was most serious, the rice crop over an area of

about 233 square miles being damaged or almost entirely destroyed. Over two thousand houses were reported to have fallen and half as many more were badly damaged, the inmates betaking themselves for shelter to the houses of their more fortunate neighbours. The after effects on the flooded lands varied very much in different places. A fertilizing deposit of muddy silt overspread many villages but a deep layer of barren sand buried the cultivable soil of others. Government granted a sum of Rs. 1,000 to relieve the most urgent cases of distress, and the Calcutta Central Committee contributed Rs. 2,000 towards the same object, while Rs. 2,000 were advanced under the Agriculturists Loans Act. The Public Works Department expended considerable sums in repairing the breaches in the embankments, and the Road Cess Committee allotted Rs. 3,000 for the repair of village roads in the flooded tracts. These measures saved the labouring classes from any prolonged distress.

A few years later the Dāmodar pouring through the Beguā breach in Burdwān scoured out a new channel for itself 2 to 3 miles west of its old bed.

During the present century high floods in the Dāmodar were reported in September 1900, September 1901 and July 1905. The heavy rainfall from 27th to 29th July 1905 caused high freshets in both the Dāmodar and the Dwarakeswar. Their overflow inundated thānas Arāmbāgh and Khanākul, damaged more than 600 houses and destroyed the winter rice, while the Dwarakeswar flooded the town of Arāmbāgh. It must be remembered, however, that the loss of winter rice in this tract is largely counterbalanced by excellent *rabi* crops, and in thāna Khānakul by extensive crops of *boro* paddy, the water for which is stored by means of dams across the river beds.

The Hooghly and Serampore subdivisions are now protected from river floods by embankments along the Dāmodar and by the high western bank of the Hooghly river, but they are liable to suffer from the accumulation of water caused by excessive local rainfall, when the water, being unable to find an outlet into the rivers, which are themselves at a high level, and being inadequately carried off by the silted-up drainage channels, sweeps over the low-lying fields and damages the standing crops. The abnormal rainfall of July 1905, for instance, submerged parts of thānas Dhaniāthāli, Polbā and Hooghly for several days, and damaged the winter rice crop to the extent of eight annas in thānas Chanditalā and Singur in the Serampore subdivision.

Very little is known of any famines in this district prior to **FAMINES**, the period of British rule, e.g., there is no record of its being **Famines** affected by the terrible famine of 1671, which decimated **Bihar** of 18th century.

and in which more than 100,000 persons are said to have died in Patna town and its suburbs alone.* Scarcity appeared in 1710, and culminated in a famine the following year, which probably affected Hooghly; for it is stated that several thousand persons died in the interior for want of food, while in Calcutta the English East India Company distributed 500 maunds of rice among the poor and made special arrangements for importing rice from cheaper marts.†

Coming to the British period, Hooghly, in common with other parts of Bengal, suffered from the great famine of 1769-70. This is evident from the account of the Dutch Admiral Stavorus, who visited Chinsura in 1769, and wrote:- "The dire effects of famine, too, were felt in Bengal. At Chinsura a woman, taking her two small children in her arms, plunged into the Ganges and drowned herself, not possessing or being able to procure anything to satisfy the raging hunger of her tender offspring. The banks of the river were covered with dying people; some of whom, unable to defend themselves, though still alive, were devoured by the jackals. This happened in the town of Chinsura itself, where a poor sick Bengalee, who had laid himself down in the street, without any assistance being offered to him by anybody, was attacked in the night by the jackals and devoured alive . . . This dreadful calamity was occasioned, partly by the failure of the rice-harvest the preceding year, but it may chiefly be attributed to the monopoly which the English had made of the rice, which was reaped the season before, and which they now held at so high a price that the natives, most of whom could earn no more than one, or one and a half, stiver (penny) per day, out of which they had to maintain a wife and children, could not buy, for this trifle of money, the tenth part of the rice they wanted, the consequences of which were that whole families perished miserably."‡ This account of the mortality is confirmed by the fact that in 1772 the Governor-General in Council reported the mortality in Bengal as "at least one third of the inhabitants of the province."§

* I. Bowrey, *Countries Round the Bay of Bengal*, 1669-1679, p. 226 and note 2.

† *Early Annals of the English in Bengal*, Wilson, I; p. 333; II, pp. 15, 36.

‡ J. S. Stavorus, *Voyages to the East Indies*, I, pp. 152 3.

§ Letter to the Court of Directors, 3rd November 1772, i.e., Hunter's *Annals of Rural Bengal*, p. 381.

In the following decade the famine of 1783 affected Hooghly only indirectly; but the famine of 1788, in which 70,000 persons are said to have died in Eastern Bengal, caused considerable distress, especially as in 1787 several *parganas* (then within the Burdwan Collectorate) had suffered from a storm and inundation. In July 1788 4,000 persons were in daily receipt of relief in Calcutta, and the Raja of Burdwan filed a petition pleading his inability to pay his arrears of revenue in consequence of the calamitous state of his district.*

Famines of 19th century. Since then the district has not suffered from any widespread general famine, though there have been periods of distress, as in 1834, 1837 and 1845, when some scarcity ensued from droughts succeeding floods. The worst of these years was 1837, when the price of food-grains rose 50 per cent in spite of large importations from Purnea, Dinajpur and the United Provinces, while crimes and duocities increased owing to distress among the lower classes. No relief measures of a special nature were, however, found necessary.

Famine of 1866. Hooghly does not appear to have suffered severely from the drought of 1865, but the imports being curtailed by the failure of crops in adjoining areas, the price of rice was greatly enhanced. The scarcity and distress were severest in the west of the district, in thana Jahānābad, where the failure of the crops was most general, and where there was a large non-agricultural population of the weaver caste. Here the distress was intensified by a flood in the rainy season of 1866 and by the number of destitute persons who flocked in from the western districts. Elsewhere the prosperous condition of the peasantry enabled them to tide over the famine without suffering the extremity of misery experienced in the neighbouring district of Midnapore. In August relief centres were opened at seven places in the Jahānābad subdivision, and in September two more were opened at Pandua and Mahānād in the east of the district. At Chineura a committee of Indian gentlemen raised subscriptions to the extent of Rs. 6,000 and daily fed all paupers seeking relief from the 14th July to the 16th October. The aggregate number of paupers thus relieved is reported to have exceeded 100,000. The funds of the committee became exhausted in the middle of October, and were then supplemented by a grant of Rs. 1,000 from the Board of Revenue. At Uttarpāra and Serampore also measures were organized by several Indian gentlemen for supplying food,

* Bengal MSS. Records of Board of Revenue, vol. I, pp. 89, 149, 150, 154; cf. Selections from Calcutta Gazette, vol. I, p. 26.

clothing and medical assistance to the indigent, without assistance from the Government. A relief hospital was opened in Hooghly and a temporary pauper hospital at Uttarpārā. Including Chaudrakona and Ghatal, which were then part of the district, the average daily number of persons in receipt of relief in the district was reported to be 645 in July, 3,242 in August, 6,741 in September, 7,041 in October, 5,041 in November and 1,041 in December.

The famine of 1874 did not affect Hooghly severely, the famine of distress being confined to the north of the district. Relief works ^{1874.} were started, but the maximum daily average number of persons employed was only 1,911 in April 1874. Altogether, Rs. 2,20,000 were spent in charitable relief, the highest daily average of persons receiving charitable relief or employed in light labour being 50,234 in September. Since then there has been some local distress in Arambagh subdivision in 1883 and 1897 due to a partial failure of the crops.

The above sketch shows that the part of the district most liable to scarcity consists of thanas Arambagh and Khanakul, which are exposed to the floods of the Damodar almost every year. Even here, however, the peasants are generally compensated for the damage caused by floods by splendid crops of *rabi* and *boro*, which thrive on the silt-enriched lands. The other two subdivisions are protected by embankments, and receive an abundant rainfall. Winter rice is the main crop, but it is supplemented by numerous other crops, such as *rabi*, vegetables or jute; while fruit orchards are numerous along the banks of rivers and streams. The facility of transport by road, rail and river enables local produce to be brought to convenient marts; and the demand for it, caused by the proximity of Calcutta and other riparian towns, enables it to be sold at a good price. A large number of labourers also find employment in the mills, while there is an ever-increasing demand for labour in other industrial concerns along the banks of the Hooghly. The combined result is that the lower classes are exceptionally well equipped with powers of resistance against scarcity.

The earliest earthquake of which there is any record during the period of British rule occurred on 6th September 1803, and shocks were felt in 1811, 1842, 1853 and 1869. The severest shocks occurred on 14th July 1885, when the semaphore tower at Niali fell down, and on 12th June 1897, when a few houses were destroyed.

The district does not lie within the regular track of cyclones ^{Cr.} and cyclonic storms. Those that do occur are few in number and ^{clones.}

burst either in May or June, when they precede the south-west monsoon or more often in October November, when the south-west monsoon is retreating. These cyclonic formations, though generating in the Bay of Bengal, are to be distinguished from the usual south-west monsoon storms that bring rain to Bengal and from the land storms of July and the winter months (December to March).

The two most violent cyclones, of which there are recorded accounts, were that of 5th October 1864, which wrecked the port of Calcutta and brought down the tower of the Hooghly Church, and that of 15th and 16th October 1874, which, passing from Midnapore northwards, swept over the Jahānābād subdivision, killing nine persons and a large number of cattle. Among other notable cyclones and cyclonic storms, may be mentioned that of 21st May 1833, which lasted for six hours and drove up a large mass of salt water from the south; that occurring in June 1842, which wrecked a fleet of Government arsenal boats; that of 9th June 1869, which lasted for nearly a whole day; and that of 27th November 1901. In the pre-British period a hurricane on 11th and 12th October 1737 is said to have sunk 20,000 boats in the Hooghly and to have killed 300,000 persons, but the numbers quoted seem much exaggerated. Tornadoes occur but rarely; but one that crossed Bhadreswar on 23rd April 1888 killed twelve persons.

DROUGHTS. Droughts are usually caused by the premature cessation of rains in September and October. They are infrequent in this district, but have been reported in the years 1834, 1837, 1845, 1865, 1867 and 1896, and also during the last two or three years. They affect the winter rice crop seriously and thus cause some temporary distress; but, on the other hand, they tend to make the district healthier by decreasing dampness and water-logging.

**BLIGHTS.
AND
PESTS.** The crops suffer much from blights, and though a general blight is unknown, almost every year one crop or other is affected in some particular locality. Flights of locusts are fortunately rare, and do not make their appearance more than once in ten years. They generally travel from the north-east and cause a little injury to the crops, but seldom or never destroy them on a large scale. Comparatively little damage is caused by wild animals, but wild pig dig up sugarcane and sweet potatoes, wantonly destroying more than they eat, while jackals also do damage to sugarcane and hares to its young shoots.

Insects, however, often damage the crops very seriously, and their number is legion. Both *ass* and *dran* plants are sometimes attacked by a mosquito-like insect and are liable to a number of

other insect pests. In the case of *āman* paddy, an insect called *shānki pokā* eats away the tender leaves of the young plant, disappearing only with heavy rain. When the ears are being formed, a black fly occasionally attacks them in immense numbers, 50 to 100 being often counted on a single ear. In 1908 the *āus* paddy was attacked by an insect which apparently was produced by the superabundant moisture in the fields. The insects were destroyed or driven away by sprinkling a small quantity of kerosene oil over the fields. Sugarcane is sometimes injured by white-ants, just after planting, and a little later the buds below the stalk are eaten away by a small grub called *majirā*. When grown, the canes are bored through by an insect that passes one stage of its life-history within the stem. The great enemy to plantains is a large black insect named *anta-pokā*, which nestles on the crown of the root stock and causes the plant to die.

Potatoes sometimes suffer much injury from a species of red ant, which makes holes through the tuber. Red ants also kill young brinjal plants, and the nursery seedlings are now and then attacked by green-grubs resembling those which attack cabbages. Thread-like worms often grow inside the roots of sweet-potatoes, injuring the plants. In cloudy weather thousands of small yellowish-green flies lay their eggs on pea pods, which grow into caterpillars that eat up almost the entire substance of the pods. The leaves and buds of young *til* (sesamum) plants are sometimes eaten away by a black insect named *thikri pokā*, and young *sun* plants are attacked by a green caterpillar resembling that found on cabbages.

Vegetable growths are a serious danger to crops and plants on lands which have not received an early ploughing. The *āman* paddy crops are subject to a disease called *kadda-murā* (literally mud-killing), in the course of which a minute vegetable growth surrounds the lower part of the plant and destroys it in a few days. Fungi also injure the *āman* crops in years of excessive rainfall, when the field has not been properly ploughed. The Bombay sugarcane, a soft juicy variety, has practically gone out of cultivation owing to a disease called *dhasā* which appeared 40 to 50 years ago. The disease is said to have been due to fermentation induced by microscopic vegetable growth in the plant, which reduced it to a rotten mass emitting a most disagreeable odour. The Bombay species has now been generally replaced by a hardier variety, the *sāmshārā*. The name *dhasā* is also given to a dreaded potato disease which causes the roots to rot, after which the plant withers. It is very probably propagated through